



ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE

CITY OF CARDIFF.

FOR THE YEAR 1908.

EDWARD WALFORD, M.D., D.P.H.,

MEDICAL OFFICER OF HEALTH, CITY AND PORT SANITARY DISTRICT OF CARDIFF ;

MEDICAL OFFICER, CARDIFF EDUCATION AUTHORITY.

Printed by Order of the Urban Sanitary Authority.

CARDIFF :
S. GLOSSOP & SONS,
NEW STREET WORKS.

1909.

CITY OF CARDIFF.

HEALTH AND PORT SANITARY COMMITTEE.

Lord Mayor :

ALDERMAN LEWIS MORGAN, J.P.

Chairman :

COUNCILLOR JAMES ROBINSON, J.P.

ALDERMAN P. W. CAREY, J.P.

„ J. H. JENKINS, J.P., M.P.

„ Sir W. S. CROSSMAN, Kt. J.P.

„ W. H. RENWICK, J.P.

COUNCILLOR J. CHAPPELL, J.P.

„ F. G. L. DAVIS.

COUNCILLOR R. J. SMITH,

(Deputy Chairman).

„ J. STANFIELD, J.P.

„ J. A. JONES.

„ W. JENKINS, J.P.

„ E. NICHOLL.

„ J. J. E. BIGGS.

CITY OF CARDIFF.

Medical Officer of Health's Department (MAY, 1909).

Medical Officer of Health :
EDWARD WALFORD, M.D., D.P.H.

Chief Inspector of Nuisances :
T. W. WARREN.*

District Inspectors :

F. GLOVER.*	J. STRANGE.*
J. W. HOLDEN.*	S. JEFFERY.*
W. FISHER.*	W. JAMES.*

Inspector under Shop Hours Acts, and Inspector of Workshops :
J. ASHMAN.*

Inspector under Shop Hours Acts :
E. L. HUGHES.*

Inspector of Meat and other Foods, and Inspector of Cowsheds and Milkshops :
G. M. MCGREGOR.*†

Supt. Inspector of Lodging Houses :
S. EVANS.*

Inspector of Lodging Houses :
A. F. MALE.*

Infectious Disease Inspectors :

GEO. THOMAS.*	F. DAVEY.
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Disinfectors :

W. THOMAS.	W. WEBSTER.
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Women Inspectors :

Miss F. WADE.*	Mrs. L. HUNTLEY.
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Chief Clerk :
T. CHANT.*

Clerks :

W. H. ALDERMAN.	R. CHANT.
P. F. NOOTE.	O. W. FUDGE.

* Cert. Royal San. Inst.

† Cert. Meat Insp. Royal San. Inst.

|| Cert. Health Visitor and School Nurse Royal San. Inst.

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CITY OF CARDIFF.

CITY HALL,
CARDIFF,
JUNE, 1909.

TO THE LORD MAYOR, ALDERMEN, AND MEMBERS
OF THE CITY COUNCIL.

MY LORD MAYOR AND GENTLEMEN,

I have the honour of submitting to you my Report for the year 1908, made in accordance with Article 18 (Section 14) of the Local Government Board's Order of March, 1891, which specifies the information to be contained in the Annual Report of the Medical Officer of Health, as follows :—

“ He shall make an annual report to the Sanitary Authority, up to the end of December in each year, comprising a summary of the action taken, or which he has advised the Sanitary Authority to take, during the year for preventing the spread of disease, and an account of the sanitary state of his district generally at the end of the year. The report shall also contain an account of the inquiries which he has made as to conditions injurious to health existing in the district, and of the proceedings in which he has taken part or advised under any statute, so far as such proceedings relate to those conditions; and also an account of the supervision exercised by him, or on his advice, for sanitary purposes over places and houses that the Sanitary Authority have power to regulate, with the nature and results of any proceedings which may have been so required and taken in respect of the same during the year. The report shall also record the action taken by him, or on his advice, during the year in regard to offensive trades, to dairies, cowsheds, and milkshops, and to factories and workshops.

“ The report shall also contain tabular statements (on forms to be supplied by us, or to the like effect) of the sickness and mortality within the district, classified according to diseases, ages, and localities.”

Under Section 132 of the Factory and Workshop Act, 1901, the Medical Officer of Health is also required to report annually on the administration of this Act in workshops and workplaces, and to send a copy of his annual report, or so much of it as deals with this subject, to the Secretary of State. The report shall also include an account of the action taken with respect to factories, workshops, and workplaces, taken under the Public Health Acts, as well as under the Factory and Workshop Act, 1901, and should contain a record of any certificates of suitability which have been granted by the Sanitary Authority during the year with respect to underground bakehouses in use at the passing of this Act.

In the memorandum issued by Dr. Arthur Newsholme, Medical Officer of the Local Government Board, dated November, 1908, it is pointed out that the annual reports of Medical Officers of Health should contain information as to the influences affecting, or threatening to affect, injuriously the public health in the district, and as to the action which has been taken, or which may still be needed, with a view to combat those influences. Further, that the report should record what action has been taken to remedy unhealthy conditions which have been reported upon in previous annual reports, or in special reports presented during the year under review, and that attention should be called afresh, year by year, to such as remain unremedied.

Attention is also directed to the recent memorandum on Medical Inspection of Children in Elementary Schools, issued by the Board of Education, dealing with the new duties thrown upon Local Education Authorities in this respect by Section 13 of the Education (Administrative Provisions) Act, 1907.

It is pointed out that "it is the desire alike of the Local Government Board and of the Board of Education that the relations of the Local Sanitary Authority and the Local Education Authority should be intimate and cordial, in order that the administrative procedures of both bodies should be reciprocally helpful. Special attention is directed to the particular Section of Circular 576 of the Board of Education entitled 'Organisation' with which the Local Government Board are in full agreement as illustrating the inter-relations of Sanitary Authority and Local Education Authority, that deserve fostering and development."

This section deals in detail with the advantages from an administrative and economical point of view of co-ordinating the work to be carried out under Section 13 of the Act of 1907, with the ordinary routine work of the Sanitary Authority, thus bringing with close administrative union two Departments of the State Service concerned with the Public Health.

Attention is called by Dr. Newsholme to the fact "that the Act does not confer powers in supersession to those heretofore exercised generally in a public health sense by Sanitary Authorities under previous enactments, but that it is supplementary to existing Public Health Law, in that it requires supervision of the health of the individual child, and it is anticipated that in accordance with the advice of the Board of Education the work of Medical Inspection of School Children, and all work connected with the hygiene of school life will be carried out under the supervision of the Medical Officer of Health, and that where that Officer is also School Medical Officer under the Code of Regulations for Public Elementary Schools, 1908, it will be convenient that the annual report which he is required to make in the latter capacity should be issued together with his annual report on the health of his district."

The following comprise the chief subjects concerning which the Local Government Board desire to obtain information through the annual report of the Medical Officer of Health :—

Physical features and general character of the district.

The chief occupations of the inhabitants, and the influence of any particular occupation on public health.

House accommodation, especially for the working classes : its adequacy and fitness for habitation. Sufficiency of open space about houses, and cleanliness of surroundings. Supervision over erection of new houses. Action under the Housing of the Working Classes Act, taken or needed.

Sewerage and drainage : its sufficiency in all parts of the district. Condition of sewers and house drains. Method or methods of disposal of sewage. Localities where improvements are needed.

Pollution of rivers and streams in the district : the sources and nature of such pollution, and any action taken to check it.

Excrement disposal : system in vogue ; defects, if any.

Removal and disposal of house refuse—whether by public scavengers or occupiers : frequency and method.

Water supply of the district or of its several parts : its source (from public service or otherwise), nature (river water, well water, upland water, etc.), sufficiency, wholesomeness and freedom (by special treatment or otherwise) from risks of pollution ; liability to plumbo-solvent action.

Milk supply : character of milk supplied within district ; administrative control, etc.

Meat inspection : food supply : action under Sale of Food and Drugs Acts.

Methods of control of Tuberculosis.

Midwives Act : Notification of Births Act.

Vital statistics.

Places over which the Council have supervision, *e.g.*, lodging houses, slaughterhouses, dairies, cowsheds and milkshops, bakchouses, factories and workshops, and offensive trades.

Schools, especially Public Elementary Schools ; sanitary condition of, including water supply ; action taken in relation to the health of the scholars and for preventing the spread of infectious disease.

Byelaws : steps taken for their enforcement ; any need of amendment or of further byelaws.

Nuisances : proceedings for their abatement—any remaining unabated.

Methods of dealing with infectious diseases : notification ; isolation hospital accommodation and its sufficiency ; disinfection.

This report will therefore deal to some extent with the above-mentioned subjects, so far as they relate to the district under the control of the City Council or Urban Sanitary Authority.

PHYSICAL FEATURES OF DISTRICT.—An account of the geology of the district was inserted in the report for the year 1903, and it will therefore be unnecessary to repeat in detail the information on this subject given therein.

The City of Cardiff comprises 6,373 acres of land and inland water, exclusive of foreshore and tidal water, and is situated upon impervious strata, consisting for the most part of new red marl ; resting upon this formation are the more superficial deposits of river gravel, more or less saturated with water. A gradual rise in the gravel takes place towards the north, so as to attain a level of nearly 40 feet above Ordnance Datum in Queen Street and the Newport Road, and 50 feet at Cathays, where resting on the red marl, it forms a deposit to a depth varying from 8 to 20 feet of good building land, upon which the greater part of the north-east side of the town is constructed. The part of the town situated on the west of the River Taff is, in the northern or Canton District, on an alluvial deposit of clay, sand, and gravel ; the southern, or Grangetown ward, being on the estuarine mud—a stiff blue clay of marine origin, which forms also the soil in the neighbourhood of the Docks and South Splott. This low-lying part of the town is now protected from the sea and tidal waters by banks, and has in many parts been raised by the deposit of made soil composed of ashes and house refuse collected by the public scavengers. The southern part of the town therefore consists of alluvial land at a very slight elevation above the ordinary sea level near the mouths of the Rivers Rhymney, Taff, and Ely.

The Rhymney and Ely Rivers, at the points at which they enter the Bristol Channel, form respectively the eastern and western limits of the City ; the Taff flowing in a southerly direction forms a natural division of the town into east and west, each having a separate drainage system.

The area of the City is distributed in Registration Sub-districts as follows :—East Cardiff, 481 acres, Central Cardiff, 3,832 acres, and West Cardiff, 2,060 acres ; and into ten Municipal Wards, containing the civil parishes of Canton, Roath, St. John, and St. Mary.

Cardiff is well provided with parks and open spaces, forming admirable recreation grounds and breathing spaces for the inhabitants of the crowded parts of the town. Those places, which belong to the public and are under the control of the Cardiff Corporation, comprise a total area of over 300 acres, as follows :—

					Acreage.		
					Exclusive of Roads.		
					Acres.	R.	P.
Roath Park (part of) ...	...	...	...	...	100	0	0
Victoria Park ...	...	...	...	...	19	2	36
Canton Park ...	...	...	...	...	6	1	36
Loudoun Square ...	...	...	...	...	1	1	37
Howard Gardens ...	...	...	...	...	1	0	36
Adamsdown Square ...	...	...	...	...	0	1	26
Plasturton Gardens ...	...	...	...	...	0	3	0
Despenser „	...	...	...	...	0	3	19
Clare „	...	...	...	...	0	0	39½
Moorland „	...	...	...	...	1	2	13
Grangetown „	...	...	...	...	3	0	14
Llanbleddian „	...	...	...	...	0	0	37
Ruthin „	...	...	...	...	0	0	27
Senghenydd „ (North)	...	...	...	...	0	1	6
„ „ (South)	...	...	...	...	0	0	12½
Windsor Esplanade Gardens ...	...	...	...	...	0	1	37
Penylan Brook Gardens...	...	...	...	...	6	0	0
Waterloo Gardens ...	...	...	...	...	3	0	0
Splott Recreation Ground ...	...	...	...	...	18	0	0
Llandaff Fields ...	...	...	...	...	70	3	2
Cathays Park ...	...	...	...	...	60	0	0
Allen's Bank Crescent Open Space ...	...	...	...	...	0	1	16
Grangetown Recreation Ground ...	...	...	...	...	9	2	0
Total ...					304	2	34

In addition to the above-named open spaces the public has, through the generosity of the owners, free access to the following parks and fields :—

					A.	R.	P.
Sophia Gardens ...	...	...	...	...	41	3	0
Sir David's Field ..	...	...	...	...	9	0	0
Cardiff Arms Park .	...	...	...	...	21	2	0

HOUSE ACCOMMODATION.—The following Table gives the number of houses within each Municipal Ward in Cardiff, as shown by the enumeration made in June, 1908, by the Inspectors in the Department of the Medical Officer of Health.

TABLE I.

MUNICIPAL WARDS.	*Area in Acres.	Houses Inhabited.	Houses Uninhabited.		Houses Building.	Total.	Population.
			In Oc- cupation.	Not in Oc- cupation.			
Central	473	1,958	309	90	4	2,361	11,356
South	519	1,805	49	72	1	1,927	10,469
Cathays	369	3,921	2	43	18	3,984	22,742
Adamsdown	1,570	2,005	30	35	...	2,070	11,629
Riverside	313	3,013	40	80	...	3,133	17,475
Canton	449	4,281	23	93	29	4,426	24,830
Grangetown	1,905	3,639	1	80	12	3,732	21,106
Roath	766	2,900	26	99	73	3,098	16,820
Park	533	4,600	29	46	15	4,690	26,680
Splott	1,454	2,977	28	43	5	3,053	17,267
Totals	8,351	31,099	537	681	157	32,474	180,374

* Including inland water and foreshore.

TABLE II.

The following Table, taken from the Census returns, shows the number of inhabited houses and population in Registration Sub-districts in 1891 and 1901 :—

Registration Sub-Districts.	Area in Statute Acres Land and Inland Water	Inhabited Houses.		Enumerated Population.		Increase or Decrease of Population between 1891 and 1901.	
		1891.	1901.	1891.	1901.	Increase.	Decrease.
East Cardiff ...	481	5,838	9,297	35,294	52,585	17,291	—
Central Cardiff ...	3,832	8,102	8,835	53,824	54,316	492	—
West Cardiff ..	2,060	6,536	9,843	39,797	57,432	17,635	—

According to Census Returns of 1901 the total number of male persons over 10 years of age engaged in occupations was 52,085. The following Table shows the percentage proportion of these males engaged in certain occupations at the time of the Census enumeration :—

TABLE III.

Occupation.	Percentage of occupied males over 10 years of age.
On Seas, Rivers, and Canals	8.3 per cent.
On Railways	5.7 "
General Labourers	5.5 "
Erectors, Fitters, Boiler Makers	5.4 "
In Docks	5.0 "
Commercial Clerks	5.0 "
Dealers in Food	4.6 "
Carpenters and Joiners	2.9 "
Masons and Masons' Labourers	2.8 "
Merchants, Agents, and Accountants	2.5 "
Carmen, Carriers	2.0 "
Messengers, Porters	2.0 "

The following Table shows the density of the population, or the average number of persons per acre of ground, within the City :—

TABLE IV.

* DENSITY OF POPULATION DURING THE PAST TEN YEARS.

Year.	Persons per Acre.
1899	24.7
1900	25.3
1901	25.9
1902	26.5
1903	27.0
1904	27.6
1905	28.1
1906	28.8
1907	29.4
1908	30.0

* Calculated on the basis of the revised population, and on area of 6,373 acres.

From an inspection of the district made in June, 1908, it was found that there were 681 vacant houses, and that 157 were in the process of building. There is, therefore, at the present time no lack of house accommodation in the City. Large block tenemented artisans' dwellings, so objectionable on account of the overcrowding on a limited area, do not exist in Cardiff. Most of the working class families occupy separate dwellings, with an open space in the back and front, and sub-let one or two rooms to lodgers or other small families. Private building companies have, in some quarters of the town, *i.e.*, Grangetown and Adamsdown, provided single tenement cottages, in which no lodgers are taken, at a rental of about 5/- per week. These houses provide excellent accommodation, containing usually four rooms in each house, and are seldom unoccupied for any length of time. The number of houses and shops in the City for which plans have been passed in each year since 1894 is shown in the following Table :—

TABLE V.

From August,	1894 to August,	1895	...	1,507
"	"	1895	" "	1,196
"	"	1896	" "	1,247
"	"	1897	" "	1,258
"	"	1898	" "	624
"	"	1899	" "	267
"	"	1900	" "	230
"	"	1901	" "	185
"	"	1902	" "	398
"	"	1903	" "	225
"	"	1904	" "	389
"	"	1905	" "	291
"	"	1906	" "	219
"	"	1907	" "	307

The following Table shows the action taken under Part II. of the Housing of the Working Classes Act, 1890, relating to houses unfit for human habitation since the Act came into force :—

TABLE VI.

PLACE.	Number of Houses.	Representations by Medical Officer of Health	Closing Orders Obtained.	Houses Demolished.	Houses Repaired.
Bryant's Court	2	2	2	—	—
Castle Court	5	5	5	5	—
Evans' Court	2	2	2	—	—
Gulliver's Court	2	2	2	—	—
Harris Court	6	6	—	—	6
Hodge's Row... ..	12	12	12	—	—
Jenkins' Court	5	5	5	—	—
Jonathan's Court	2	2	2	2	—
Love Lane Court	5	5	1	—	4
Mason's Arms Court	8	8	8	—	—
Matthews' Court	6	6	6	—	—
Moulders' Arms Court... ..	2	2	2	2	—
North Road	1	1	1	—	—
Picton Cottages	3	3	3	—	—
Spring Gardens Court	5	5	5	—	—
Stacey Court	4	4	4	4	—
Williams' Court	2	2	2	—	—
Totals	72	72	62	13	10

Courts, &c., in occupation :—

Carpenters' Arms Court
Crown Court
Davies' Court
Green Garden Court
Mack's Court

Old Sea Lock Court
Roberts' Court
Rowlands' Buildings
Trice's Court
Womanby Street Cottages

Courts, &c., demolished without representations :—

Dews' Court	Kingston Court
Giles' Court	Stagg Terrace

There are no large insanitary areas in the City which could be conveniently dealt with for the purposes of an improvement scheme under Part I. of the Housing of the Working Classes Act, 1890, but a considerable number of houses have been closed as unfit for human habitation, under the provisions of Part II. of the Act. Amongst the dwellings which have been permanently closed (since 1890) either by a closing order, as provided by Sec. 32 of the Act, or by the voluntary action of the owner, after initial proceedings by the Sanitary Authority, may be mentioned :—Mill Lane Court, 34 houses in Stanley Street, 12 houses in Leckwith Road, Kettle Court, Evans' Court, Union Buildings, Sandon Court, Dalton Court, Rising Sun Court, Jones' Court (Womanby Street), The Tunnel (Queen Street), Temperance Terrace (Working Street), Queen's Place, Mason's Arms Court, Love Lane Court, Castle Court, Moulders' Arms Court, Bryant's Court, Matthews' Court, Stacey Court, Picton Cottages, Stagg Terrace, Jenkins' Court, Gulliver's Court, Jonathan's Court, Spring Garden Court, and Hodge's Row.

The erection of new houses, together with the construction of their drainage, is under the control of the City Engineer and Surveyor. All such dwellings are constructed subject to the new Building Bye-laws, which came into force on the 21st March, 1900.

WATER SUPPLY.—A full account of the Cardiff Waterworks has been given in previous annual reports. It will therefore be unnecessary to enter into any details on this occasion.

The water supplied to the City, and to areas beyond the City boundaries as provided by Act of Parliament, is a pure, soft water, derived from the gathering grounds, on the old red sandstone formation, to the north of the South Wales coalfield, about 35 miles from Cardiff, in the Taff Fawr Valley, Breconshire. The water is conveyed by gravitation from the storage reservoirs at Taff Fawr to the reservoirs at Llanishen and Lisvane, balancing reservoirs being placed at suitable situations along the line of the main conduit, with filter beds of sand, etc., at Rhubina and the Heath. At the latter place Candy's Polarite Filters are also in operation. The capacity of the storage reservoirs is as follows :—

Beacons Storage Reservoir	...	...	345,000,000	gallons
Cantreff " "	...	...	323,000,000	"
Llanishen " "	...	...	317,000,000	"
Lisvane " "	...	...	80,000,000	"

The high level service is supplied from Rhubina, at which place the works comprise filter beds and storage reservoirs, supplemented by a service reservoir and water tower at Penylan, supplied with water by gravitation from Rhubina.

The average rainfall at the Brecon Beacons Reservoir for the past 24 years was 76·04 inches, the total during 1908 being 75·45 inches.

The Cardiff Corporation is now applying to Parliament for powers to acquire further land and to construct an additional reservoir at Taff Fawr to meet the requirements of the increasing population, and in order that a minimum rate of 28 gallons per head should be supplied.

The difficulties in connection with the drainage of the Storey Arms Inn have now been overcome in such a way as to avoid the probability of any pollution of the reservoirs from this source.

These works, and all engineering matters connected with the water supply of the district, are under the control of the Waterworks Engineer, Mr. C. H. Priestley, M.I.C.E., to whom I am indebted for much of the information contained in this report relating to the water supply.

The quality of the water supplied to the public is good and of a low degree of hardness. The advantages of a soft water for dietetic, domestic, and manufacturing processes are sufficiently obvious, and have been brought to your notice on many occasions; the only disadvantage which has been alleged in the case of soft waters is the possibility of plumbo-solvent action which some of these waters possess. Frequent examinations have been made during the past year in the Public Health Laboratory as to the quality of the Cardiff water, and on no occasion has any contamination by lead been discovered. The most recent examination of this water was made by Dr. Percy F. Frankland, who gives the following results, dated December, 1908 :—

BACTERIOLOGICAL EXAMINATION.

DESCRIPTION.	Number of Micro-Organisms obtained from One Cubic-Centimetre of Water.				Tauro-choleate Agar. No. of Colonies from 1 c.c. water, Incubated 4 days at 37°C	INDOL TEST.	
	Ordinary Gelatine Culture.	No. of days Incubated at 20°C.	Carbolic Gelatine Culture.	No. of days Incubated at 20°C.		Cub. Cent. Water.	Cultivation in Plain Broth 37°C.
Cardiff Corporation Water Supply :—							
Sample collected in sterilised bottles on December 11th, 1908.	42	2	0	7	7	1.0	Faint Indol
It was transmitted in ice-packing, and received and cultivated on the same day.	103	7	...	...	...	0.1	No Indol

FLUORESCENCE TEST.		BACILLUS ENTERITIDIS SPOROGENES TEST.		BACILLUS COLI TEST. (Cultivation in Tauroch—Glucose—Litmus—Peptone solution at 37°C.				
Cub. Cent. Water.	Cultivation in Neutral Red Glucose Broth at 37°C.	Cub. Cent. Water.	Anaerobic Cultivation of Spores in Milk at 37°C.	100 c.c. Water.	50 c.c. Water.	10 c.c. Water.	1.0 c.c. Water.	0.1 c.c. Water.
50.0	Fluorescent	10.0	0	0	0	0	0	0
1.0	0	1.0	0	...	...	...	...	...
0.1	0	0.1	0	...	...	...	...	...

REMARKS :—Almost clear.

CHEMICAL ANALYSIS.

(Results of Analysis expressed in Parts per 100,000)

DESCRIPTION.	Total Solid Matters.	Organic Carbon.	Organic Nitrogen.	Ammonia.	Nitrogen as Nitrates and Nitrites.	Total Combined Nitrogen.	Chlorine.	HARDNESS.		
								Temporary.	Permanent.	Total.
Cardiff Corporation Water Supply :—										
Sample collected Dec. 11th, 1908	6.28	.160	.016	0	.024	.040	0.75	0.3	3.0	3.3

REMARKS.—Almost clear; slight peaty taste; free from poisonous metals and nitrates.

Dr. Frankland reports "that the water was perfectly clear, that it possessed only a slight peaty taste, and contained only a small proportion of vegetable organic matter for water derived from a moorland gathering ground. This water is of most excellent chemical quality for drinking and all domestic uses, whilst being also of a very low degree of hardness, it is well fitted for use in washing and most manufacturing operations. It very closely resembles the Birmingham water supply, derived from the Elan Valley, but contains rather less organic matter. It is also of a very high degree of bacterial purity, for the *Bacillus Coli* was not discovered in even 100 cubic centimeters of water. The total number of bacteria, although not quite as small as that found in the best filtered water taken directly from the filters, was not excessive, especially for a sample taken from the mains."

The results of the most recent chemical analysis of the Cardiff water made at the Public Health Laboratory, is herewith given :—

CARDIFF & COUNTY PUBLIC HEALTH LABORATORY, DECEMBER, 1908.

Report on Analysis of Sample of Water taken from Laboratory tap :—

Appearance in two ft. tube	...	...	...	Yellowish-green, clear
Re-action	...	...	...	Faintly alkaline
Total Hardness	...	...	...	3.75°
Chlorine	...	...	...	<div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Parts per 100,000</div> <div style="margin-left: 10px;"> ·7 ·01 ·0006 ·0054 </div> </div>
Nitrogenous Nitrates	...	...	...
Saline (or "Free") Ammonia	...	...	...
Organic (or "Albuminoid") Ammonia	...	...	...

REMARKS.—A soft water. Chemical analysis shows no evidence of any sewage or animal contamination, and no trace of dissolved lead.

JOHN H. SUGDEN, M.Sc., F.I.C.

FOOD INSPECTION.—The inspection of meat and other foods has been systematically carried out during the year. As all the slaughtering within the limits of the City is done in the two Public Abattoirs belonging to the Corporation, it is comparatively easy to exercise an efficient supervision over the carcasses of animals slaughtered upon these premises, as well as over the meat exposed for sale in the markets adjoining the slaughter houses. Under these circumstances, when unsound meat is discovered, and is voluntarily surrendered by the owner, no proceedings are taken under Sections 116 and 117 of the Public Health Act, 1875. No order for destruction is in such cases made by the magistrates, and the meat is destroyed under the supervision of an Inspector of the Sanitary Authority.

The Staff of Inspectors of meat and foods comprises the following :—Mr. P. J. Mullane, M.R.C.V.S., Veterinary Surgeon to the Corporation, acts as Chief Inspector of Meat. By arrangement between the Health Committee and the Property and Markets Committee, Mr. N. Rees, the Superintendent of the Roath Abattoir, and four of his assistants are appointed to assist in the inspection of meat in the Public Slaughter Houses. Mr. G. M. McGregor, who holds the Certificate of the Royal Sanitary Institute for Meat Inspectors, and who was formerly a butcher, acts as Meat and Food Inspector in Shops and Markets within the City. In connection with the meat inspection, full use is made of the Public Health Laboratory for purposes of diagnosis.

The following Table shows the amount of meat and other food found by the Medical Officer of Health to be unfit for food, and destroyed, either with the consent of the owner, or by an order of a magistrate, in each year during the period 1896—1908.

TABLE VII.

Year.							Food.
1896	...	...	...	...	...	...	3,896 lbs.
1898	...	...	...	...	...	...	10,824 "
1898	...	...	...	...	...	...	9,929 "
1899	...	...	...	...	...	...	14,205 "
1900	...	...	...	...	...	...	21,217 "
1901	...	...	...	...	...	...	33,696 "
1902	...	...	...	...	...	...	43,675 "
1903	...	...	...	...	...	...	41,710 "
1904	...	...	...	...	...	...	41,606 "
1905	...	...	...	...	...	...	41,212 "
1906	...	...	...	...	...	...	48,909 "
1907	...	...	...	...	...	...	54,180 "
1908	...	...	...	...	...	...	146,102 "

During the year 1908 the number of animals slaughtered in the Public Slaughter Houses in the City was as follows :—

					Roath Abattoir.	Canton Abattoir.
Beasts	...	...	...	...	7,141	814
Sheep	...	...	...	...	37,102	4,930
Calves	...	...	...	...	4,727	209
Pigs	...	...	...	...	22,242	4,331
Totals	...	...	...	...	71,212	10,284

TABLE VIII.

UNSOOUND MEAT SEIZED OR SURRENDERED.

Place of Seizure.					Number of Carcases.	Number Condemned by Magistrates	Number Destroyed by arrangement with Owner	Total Weight in lbs. of whole and part Car- cases Destroyed
Roath Slaughter House	...	...	...	...	103	—	103	36,102
Canton	„	„	...	...	7	—	7	3,842
Totals	...	...	...	...	110	—	110	39,944

The cause of seizure in each case was as follows :—

Bruised	...	1 sheep	Found Dead	...	1 sheep
Cirrhosis and Dropsy	...	1 pig	Inflammation	...	1 pig
Decomposition	...	1 sheep	Injuries	...	1 sheep
Distomatosis	...	2 sheep	Jaundice	...	2 pigs
Dropsy	...	1 pig	Parasites	...	2 sheep
Do.	...	1 sheep	Septic Peritonitis	...	2 pigs
Dropsy and Emaciated	...	1 sheep	Septic Pleurisy	...	1 pig
Emaciated	...	2 sheep	Suffocation	...	1 sheep
Exhaustion	...	1 sheep	Tuberculosis	...	53 pigs
Found Dead	...	7 pigs	Do.	...	28 beasts

TABLE IX.

MEAT INSPECTION IN THE PUBLIC SLAUGHTERHOUSES AT ROATH AND CANTON 1899-1908 :

	Year.	Number of Animals Slaughtered	Number of Animals Condemned	Percentage Condemned
Roath	1899	75,684	31	0.04
Canton	"	9,694		
Total ... ..	...	85,378		
Roath	1900	83,880	30	0.03
Canton	"	10,783	1	
Total ... ..	...	94,663	31	
Roath	1901	69,385	61	0.08
Canton	"	10,578	5	
Total ... ..	...	79,963	66	
Roath	1902	73,528	66	0.09
Canton	"	11,518	9	
Total ... ..	...	85,046	75	
Roath	1903	69,146	72	0.09
Canton	"	12,112	5	
Total ... ..	...	81,258	77	
Roath	1904	74,550	80	0.10
Canton	"	11,154	8	
Total ... ..	...	85,704	88	
Roath	1905	70,076	74	0.10
Canton	"	10,482	10	
Total ... ..	...	80,558	84	
Roath	1906	67,155	94	0.14
Canton	"	10,428	14	
Total ... ..	...	77,583	108	
Roath	1907	68,845	81	0.11
Canton	"	10,888	9	
Total ... ..	...	79,733	90	
Roath	1908	71,212	103	0.13
Canton	"	10,284	7	
Total ... ..	...	81,496	110	

Meat and other food seized or surrendered at shops, stores, &c. :—

Beef	...	...	...	...	1,866 lbs.
Mutton	...	...	...	...	3,071 "
Pork and Bacon	...	...	...	...	16,222 "
Veal	...	...	...	...	819 "
Rabbits	...	...	...	...	4,113 "
Poultry	...	...	...	...	975 "
Fish	...	...	...	...	18,580 "
Vegetables	...	...	...	...	18,289 "
Fruit	...	...	...	...	27,020 "
Provisions	...	...	...	...	14,607 "
Sweets	...	...	...	...	580 "
Cream	...	...	...	...	16 "
Total					106,158 lbs

In addition to the above, 82 gallons of milk were destroyed.

During the year a Joint Committee of the Health and Property and Markets Committees was formed to take into consideration some alterations in the administration of the Public Slaughter Houses and Meat Markets. After due inquiry the Joint Committee made the following recommendations :—

- (1) That the Slaughter Houses at Roath and Canton (excluding the fabric and market office), the entire supervision of slaughtering and slaughtermen, cleansing, and such assistance as may be necessary, and a proportion of the fees for slaughtering and slaughtermen, be transferred to and vested in the Health and Port Sanitary Committee (subject to the approval of the Council in all things).
- (2) That the Medical Officer of Health submit to the Joint Committee in due course a scheme for carrying this out in detail; and that in connection therewith he consult the City Treasurer and Controller as to the proportion of the Manager's wages and slaughtering and slaughtermen's fees, loan charges, and other financial details, to be borne by each Committee concerned.
- (3) That the above arrangement come into operation on such a date as the Treasurer and the Medical Officer of Health may recommend.
- (4) That as and from the date fixed under No. 3 hereof, the allowances to the Market Staff for meat detection cease :

In accordance with these recommendations the following report was presented to the Joint Committee :—

SUGGESTIONS FOR CARRYING OUT THE PROPOSALS OF THE JOINT PROPERTY AND MARKETS AND
HEALTH COMMITTEE OF JUNE 2ND, 1908.

In order to carry out the proposals of the Joint Committee, the following arrangement is suggested.

At the present time the Health Committee is the Authority responsible for the inspection of animals and meat. This duty is performed under the powers given by the Public Health Acts, the Diseases of Animals Act, and the Orders and Regulations of the Board of Agriculture.

The Property and Markets Committee has control of the Roath and Canton Slaughter Houses, Meat and Cattle Markets, including the slaughtering and cleansing of the slaughter house premises.

Your Joint Committee now recommends, in order to simplify the administrative work hitherto performed under two Committees with separate staff, that the entire supervision of the slaughtering, slaughter men, and cleansing should be transferred to the Health Committee, which is now the Committee responsible for the inspection of cattle and meat. This arrangement would in my opinion add to the efficiency of the meat inspection in the slaughter houses and meat markets, as it is obvious that the dual control over the same men in the performance of duties so closely allied as those of slaughtering and the inspection of carcasses is unsatisfactory and inconvenient. It is suggested therefore,

That the Superintendent and his Assistants at the Roath Slaughter House be relieved entirely of their duties as Meat Inspectors under the Health Committee.

That Mr. Mullane, M.R.C.V.S., act as Chief Meat Inspector in the Department of the Medical Officer of Health.

That two Meat Inspectors be appointed by the Health Committee, to devote their whole time to the duties of their office, to rank as Assistant Inspectors, with a commencing salary of £91 each, rising in accordance with the scale now in force for the Inspectors in the Health Department; that they be provided with uniform or overalls suitable for this work, and perform their duties under the immediate direction of the Chief Meat Inspector, such duties to be set forth at the time of their appointment.

That Mr. Rees and his assistants carry out the instructions of the Chief Meat Inspector, Mr. Mullane, with respect to the disposal of animals, carcasses, internal organs and slaughter house refuse, including the cleansing and disinfecting of the premises in accordance with the Orders of the Board of Agriculture and with the requirements of the Public Health Acts.

That the duties of the Chief Meat Inspector and his Assistants include the inspection of meat at the Roath and Canton Slaughter Houses and the adjacent cattle and meat markets.

That these Assistants must, at the time of their appointment, possess the Certificate of Meat Inspector of the Royal Sanitary Institute.

EDWARD WALFORD, M.D.,

Medical Officer of Health.

In connection with food inspection the conclusions of the second Interim Report of the Royal Commission recently appointed to inquire into the relations of Human and Animal Tuberculosis are of interest. The following is a summary of these conclusions :—

“ There can be no doubt but that in a certain number of cases the tuberculosis occurring in the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis; and there also can be no doubt that in the majority at least of these cases the bacillus is introduced through cow's milk. Cow's milk containing bovine tubercle bacilli is clearly a cause of tuberculosis, and of fatal tuberculosis in man. A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow's milk containing tubercle bacilli. The presence of tubercle bacilli in cow's milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used as food. There is far less difficulty in recognising clinically that a cow is distinctly suffering from tuberculosis, in which case she may be yielding tuberculous milk. The milk coming from such a cow ought not to form part of human food, and indeed ought not to be used as food at all. Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of such milk.”

In accordance with the views expressed in this report, the Health Committee recommended the insertion of certain clauses in the Cardiff Corporation Bill, 1909, now before Parliament. These clauses are similar to those contained in certain Local Acts of Parliament, and deal with the further protection of the milk supply against the infection of tuberculosis. The powers which a Sanitary Authority now possess for dealing with tuberculous milk are derived solely from the Dairies, Cowsheds, and Milkshops Orders, and are somewhat incomplete. These need supplementing in the direction indicated.

The inspection of cowsheds and of the premises of milk purveyors was carried out in a very complete and efficient manner by Inspector McGregor and by the District Inspectors. The results of this inspection are herewith given :—

MILKSHOPS :—

Milksellers on Register	...	...	...	...	...	...	407
Inspections	...	...	...	...	...	...	1,034
Notices <i>re</i> sanitary defects issued	...	...	...	...	...	...	67
Notices complied with	...	...	...	...	...	...	63

COWSHEDS :—

Cowkeepers on Register	...	...	...	...	...	...	22
Cows allowed	...	...	...	...	...	...	222
Inspections	...	...	...	...	...	...	271
Notices <i>re</i> sanitary defects issued	...	...	...	...	...	...	6
Notices complied with	...	...	...	...	...	...	4

The new Regulations made under the provisions of the Dairies, Cowsheds and Milkshops Order came into operation in February, 1908, and give more complete power than those formerly in force, especially in the matter of cleanliness of milk vessels and the protection of milk against dust and contamination.

The following notice has been issued to every purveyor of milk residing in the city, calling attention to these regulations :—

NOTICE TO DAIRYMEN AND MILKSELLERS.

The attention of Milk Dealers is hereby drawn to the necessity of protecting milk from the access of dust, since it may be assumed that the air of the City always contains injurious particles. Especially is this the case when milk is retailed in small shops containing any other articles for sale. The danger is also very great when milk is sold from open cans in windy weather.

Diseases such as Scarlet Fever are liable to be conveyed by milk when it is freely exposed to dust from the persons of people recovering from Scarlet Fever, and have been propagated when the persons handling the milk have themselves been recovering from infectious illness.

It is necessary that cans should be kept covered in such a way as to exclude infective particles except when milk is being removed for sale.

Your attention is drawn, therefore, to the following clauses of the Regulations in force in Cardiff relating to Dairies, Cowsheds, and Milkshops :—

Cleanliness of Milk Stores and Milk-Shops.

“ Every occupier of a milk-store or milkshop shall cause every part of the interior of such milk-store or milkshop to be thoroughly cleansed from time to time as often as may be necessary to maintain such milk-store or milkshop in a thorough state of cleanliness.”

For prescribing precautions to be taken by Purveyors of milk and Persons selling milk by retail against infection or contamination.

“ Every purveyor of milk or person selling milk by retail shall take all reasonable and proper precautions, in and in connection with the storage and distribution of the milk, and otherwise, to prevent the exposure of the milk to any infection or contamination.”

“ He shall not deposit or keep any milk intended for sale in any room or place where it would be liable to become infected or contaminated by impure air, or by any offensive, noxious, or deleterious gas or substance, or by any noxious or injurious emanation, exhalation, or effluvium.”

“ He shall not keep milk for sale, or cause or suffer any such milk to be placed, in any vessel, receptacle or utensil which is not thoroughly clean.”

“ He shall cause every vessel containing milk for sale to be kept properly covered, or the milk contained in such vessel to be otherwise sufficiently protected from contamination by dirt or flies.”

"He shall cause every vessel, receptacle, or utensil used by him for containing or measuring milk for sale or for its delivery at the houses of customers to be thoroughly cleansed with steam or clean boiling water after it shall have been used, and to be maintained in a constant state of cleanliness."

Any offence against the above-mentioned Regulations renders the offender liable to a penalty of £5.

Your attention is also drawn to the following recommendation of the Departmental Committee on Preservatives in Food :—

"That the use of any preservative or colouring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drugs Acts."

Under these circumstances the Sanitary Authority will take action under the Sale of Food and Drugs Acts in instances where preservatives, such as Boracic Acid, Formalin, etc., are reported in milk.

EDWARD WALFORD, M.D.,

Medical Officer of Health.

With respect to tuberculosis in cattle and pigs slaughtered for human food, the procedure set forth in previous reports has been continued, and is in accordance with the principles laid down by the Royal Commission on Tuberculosis, and embodied in the following circular letter sent by the Local Government Board to all Sanitary Authorities :—

SEIZURE AND CONDEMNATION OF TUBERCULOUS MEAT.

Local Government Board,

Whitehall, S.W.,

7th September, 1904.

Sir,

I am directed by the Local Government Board to state that they have had under consideration the Report of the Select Committee of the House of Commons on the Tuberculosis (Animals) Compensation Bill, 1904, in which reference is made (a) to the variety of practice alleged to exist with regard to the amount of tubercular deposit, the existence of which in a carcase is held to justify its total condemnation; and (b) to complaints made by butchers as to the injury caused to them by their prosecution in open court for having tuberculous meat upon their premises.

With regard to (a) it appears to the Board to be most desirable that there should be uniformity in the practice of Meat Inspectors in dealing with the carcasses of cattle; and they have already on two occasions, viz., in their circular letters of the 11th March, 1899, and 6th September, 1901, set out and urged the observance of the principles laid down by the Royal Commission on Tuberculosis in their report of 1898 with respect to the degree of tubercular disease which should cause a carcase or part thereof to be seized. The Royal Commission stated as follows :—

"We are of opinion that the following principles should be observed in the inspection of tuberculous carcasses of cattle :—

- (a) When there is miliary tuberculosis of both lungs.
- (b) When tuberculous lesions are present on the pleura and peritoneum.
- (c) When tuberculous lesions are present in the muscular system, or in the lymphatic glands embedded in or between the muscles.
- (d) When tuberculous lesions exist in any part of an emaciated carcase.

The entire carcase and all the organs may be seized.

- (a) When the lesions are confined to the lungs and the thoracic lymphatic glands.
- (b) When the lesions are confined to the liver.
- (c) When the lesions are confined to the pharyngeal lymphatic glands.
- (d) When the lesions are confined to any combination of the foregoing, but are collectively small in extent.

The carcase, if otherwise healthy, shall not be condemned, but every part of it containing tuberculous lesions shall be seized."

The Board are of opinion that, at the present time, measures more stringent than those advocated by the Royal Commission are not called for; but they would impress upon the Council the expediency and desirability of insisting upon those of their officers who are employed as Meat Inspectors acting in strict accordance with the principles thus laid down, if this is not already the case.

With regard to (b) the Select Committee express their view that, if a butcher who is in possession of tuberculous meat has notified the fact to the proper authority as soon as he could be reasonably expected to be aware of it, the case should not be taken into court.

The Board understand that in some districts the course recommended by the Committee is followed now, but where it is not so the Board suggest, that having regard to the serious consequences which may result to a butcher from prosecution in Open Court for being in possession of tuberculous meat, the Council should act upon the view expressed by the Select Committee in cases where such possession is voluntarily and promptly disclosed by the owner.

I am, Sir,

Your obedient servant,

S. B. PROVIS,

Secretary.

During the year the carcasses of 81 animals affected with tuberculosis were dealt with in accordance with the recommendations of the Royal Commission, as most of these were detected by the Meat Inspectors at the Municipal Slaughter-Houses (the only slaughter-houses in the City). The meat was surrendered voluntarily by the owners, and such cases were not taken into Court.

Although the danger of transmitting tuberculosis through the medium of meat may not be very great, it is felt that in the interests of the consumer the inspection should be as complete as possible.

Within the City the inspection meets all reasonable requirements, but at the same time, it affords an insufficient protection against the introduction of diseased meat from outside the Urban District. The difficulties of inspecting meat in rural districts, in which there are a large number of private slaughter-houses are considerable, and in very few of them does any satisfactory system of inspection obtain.

The following report upon Tuberculosis and Milk Supply was submitted to the Parliamentary Committee during 1908.

In accordance with your request I beg to submit for your consideration the following Report upon a communication received from the Chairman of a Conference upon Tuberculosis and Milk Supply, held at the Town Hall, Manchester, on Friday, February 28th, 1908.

The Chairman informs your Authority that the Conference was attended by delegates representing the Public Health Committees of the Cities of Liverpool, Manchester, Birmingham, Leeds, and Sheffield. The representatives were of opinion, as the result of the experience in their cities, "that the milk in about ten per cent. of the churns sent into these towns contains the living infection of Tuberculosis."

The Conference decided to approach the Government with a view to getting effective steps taken to eradicate Bovine Tuberculosis, and passed the following Resolution:—

"That having regard to the experience of the five towns whose delegates have conferred on this subject, and also on the return recently made to the House of Commons at the request of Dr. Rutherford, a representation be made to the Presidents of the Local Government Board and the Board of Agriculture and Fisheries with a view to inducing these Boards to take effective steps to enforce uniformly throughout the country proper and suitable inspection of dairies and cowsheds, and for regulating the construction of such dairies and cowsheds so as to ensure cleanliness and suitable hygienic conditions; and further, that the Government be respectfully asked to include in their prospective legislation dealing with milk, clauses calculated to bring about the eradication of Tuberculosis from bovines within a measurable period of years."

The Conference felt that the subject is of much importance to every town, and therefore requested that your Authority be communicated with in order that steps might be taken, either by Memorial or otherwise, to urge the present Government to deal effectively with the subject, and suggested that you should ask your Member of Parliament to help in every possible way.

In confirmation of the foregoing statements I may mention that it is felt generally throughout the country that the quality of the milk supplied to large cities and towns from the various rural districts and agricultural counties is unsatisfactory as regards cleanliness and absence from Tubercular Infection. These unsatisfactory conditions are to some extent attributable to the laxity with which the Dairies, Cowsheds, and Milkshops Orders, 1885-1886-1889, are carried out in these districts, in many of which no regulations have been made under the powers given by Article 13 of the Order of 1885, and also to the absence of any definite legislation calculated to eradicate Tuberculosis from cattle.

During the year 1905, I caused 23 samples of milk to be taken from the Great Western Railway Station, to be examined in our Public Health Laboratory. The results of this examination, which are enclosed in this Report, showed a considerable amount of uncleanness, as it is considered quite possible with ordinary care and moderate cleanliness to obtain milk with not more than 30,000 bacteria per cubic centimetre.

Under the circumstances set forth in this Report your Authority will doubtless consider that it is desirable to join with other Authorities in approaching the Government in the direction indicated in the Resolution of the Conference.

EDWARD WALFORD, M.D.,

Medical Officer of Health.

Milk Samples delivered by the Consignor to the Consignee at the Great Western Railway Station, Cardiff.

No. of Sample	Date Collected	Bacterial Content of Samples per c.c.		Volume of Milk yielding Indol in Broth Cultures (5 days).	Preservatives. + Present. — Absent.
		At 37°C.	At 20°C.		
	1905.				
1	6th July	128,000	308,000	0.1 c.c.	
2	" "	80,000	liquified	0.0001 c.c.	
3	" "	99,200	liquified	0.01 c.c.	
4	" "	uncountable	uncountable	0.01 c.c.	
		from 0.01 c.c.	from 0.01 c.c.		
5	17th July	22,500	liquified	0.001 c.c.	—
6	" "	uncountable	uncountable	0.001 c.c.	—
		from 0.01 c.c.	from 0.01 c.c.		
7	" "	123,200	liquifiers +	0.001 c.c.	—
8	" "	44,400	liquified	0.0001 c.c.	—
9	" "	147,200	liquified	0.001 c.c.	—
10	21st Sept.	100,000	400,000	0.1 c.c.	—
11	" "	20,000	220,000	0.1 c.c. =	—
			negative		
12	" "	120,000	130,000	0.01 c.c.	—
13	" "	3,400,000	2,880,000	0.1 c.c. negative	—
14	1st Nov.	70,000	290,000	0.1 c.c. negative	—
			(approx.)		
15	" "	L10,000	50,000	0.1 c.c. negative	—
16	" "	90,000	140,000	0.1 c.c.	—
17	" "	30,000	150,000	0.1 c.c. negative	
18	" "	30,000	10,000	0.1 c.c. negative	—
19	" "	10,000	190,000	0.1 c.c. negative	—
20	22nd Nov.	640,000	1,760,000	0.001 c.c.	
21	" "	20,000	L 10,000	0.1 c.c. negative	+
					Boric Acid.
22	" "	80,000	50,000	0.1 c.c.	—
23	" "	70,000	100,000	0.1 c.c.	—

SALE OF FOOD AND DRUGS ACTS.—The following Table shows the number of samples submitted during the year 1908, to the Public Analyst, Mr. Thomas Hughes, F.I.C., F.C.S., Cardiff.

TABLE X.

Samples obtained.	Number of Samples.	Number of Genuine Samples.	Number of Samples Adulterated.	Results of Prosecutions.
Milk	460	415	45	£5 and costs; £5 and costs; £5 and costs; £3 and costs; £2 and costs; £2 and costs; £2 and costs; £2 and costs; £2 and costs; £2 and costs; £2 and costs; £1 and costs; £1 and costs; £1 and costs; 10s. and costs; 10s. and costs; 10s. and costs; 10s. and costs; 10s. and costs; 5s. and costs; 5s. including costs; 2 cases fined costs; 7 cases dismissed; no action taken in 13 cases.
Milk (skimmed) ..	9	6	3	£5 and costs; £5 and costs; £2 and costs.
Cheese	3	3	—	
Margarine	42	42	—	
Butter	59	54	5	£10 and costs; £4 and costs; 1 case fined costs; no action taken in 2 cases.
Milk blended butter ...	1	1	—	
Butter (Informal) ...	6	5	1	
Bread	6	6	—	
Oatmeal	6	6	—	
Coffee	21	21	—	
Cornflour	6	6	—	
Lard	6	6	—	
Vinegar	6	6	—	
Beer	3	3	—	
Jam	3	3	—	
Arrowroot	6	6	—	
Sago	3	3	—	
Demerara Sugar ...	24	22	2	1 case dismissed; 1 case withdrawn.
Tea	6	6	—	
Ground ginger ...	3	3	—	
Pepper	6	6	—	
Tapioca	3	3	—	
Self raising flour ...	6	6	—	
Preserved Peas ...	6	2	4	No action taken in 4 cases.
Totals	700	640	60	£66 10s. 0d. and costs.

TABLE XI.

Table showing number of samples of milk analyzed and proportion adulterated, during the year 1908 :—

	Total Number of Samples Analyzed.	ADULTERATED.					
		Number	Per-centage	Added Water	Defi- cient Fat	Preser- vatives	Added Water and Preser- vatives.
WHOLESALE—							
Taken at Railway Stations	52	48	10.2	1	5	—	—
RETAIL—							
Taken in shops, carts, etc.	417			19	15	5	3

TABLE XII.

Unofficial samples of milk analysed at the Cardiff and County Public Health Laboratory.

	Total No. of samples Analyzed	ADULTERATED.					
		Number	Per-centage	Added Water	Deficient Fat	Deficient Fat and Preservatives	Preservatives
RETAIL—							
Taken in shops, carts, etc.	104	25	24.0	1	21	2	1

TABLE XIII.

Adulterated Official Samples where no proceedings were taken—

No. of Sample	Article.	Adulteration.	Remarks.
122	Milk	3% deficient in milk fat	Purchased officially.
127	"	5.5% of added water	" "
212	"	1.8% " " "	" "
215	"	2% " " "	" "
223	"	4.9% " " "	" "
242	"	1% " " "	" "
392	"	2.3% " " "	" "
518	"	1.4% " " "	" "
522	"	1% " " "	" "
593	"	2% " " "	" "
627	"	2% deficient in milk fat	" "
652	"	2% of added water	" "
671	"	3% deficient in milk fat	" "

Proceedings are not taken in cases in which the adulteration is small and generally when the amount of added water is less than 5%.

In the case of No. 127, the amount of milk fat was excessive, 9.72%, and acting upon the advice of the Public Analyst no proceedings were taken.

TABLE XIV.

RESULTS OF PROSECUTIONS 1908.

	NO. OF SAMPLE.	ARTICLE.	FINES.	REMARKS.
FIRST QUARTER.	4	Milk	£ s. d. —	Dismissed
	52	" " " " " "	2 0 0	and costs
	78	Skimmed milk	5 0 0	" "
	79	" " " " " "	2 0 0	" "
	80	" " " " " "	5 0 0	" "
	94	Butter	10 0 0	" "
	109	Milk	0 10 0	" "
	113	" " " " " "	—	Dismissed
	114	" " " " " "	—	To pay costs
SECOND QUARTER.	122	" " " " " "	—	No action taken. See Table XIII.
	127	" " " " " "	—	" " " "
	159	Milk	0 5 0	and costs
	193	" " " " " "	3 0 0	" "
	212	" " " " " "	—	No action taken. See Table XIII.
	215	" " " " " "	—	" " " "
	218	" " " " " "	2 0 0	and costs
	221	" " " " " "	2 0 0	" "
	223	" " " " " "	—	No action taken. See Table XIII.
THIRD QUARTER.	232	" " " " " "	2 0 0	and costs
	247	" " " " " "	—	To pay costs
	251	Butter	4 0 0	and costs
	265	Milk	—	Dismissed
	266	" " " " " "	—	" "
	267	" " " " " "	—	" "
	270	" " " " " "	—	" "
	302	" " " " " "	0 5 0	including costs
	312	" " " " " "	1 0 0	and costs
FOURTH QUARTER.	315	" " " " " "	2 0 0	" "
	318	" " " " " "	5 0 0	" "
	342	Milk	—	No action taken. See Table XIII.
	343	" " " " " "	2 0 0	and costs
	365	" " " " " "	5 0 0	" "
	381	" " " " " "	0 10 0	" "
	382	" " " " " "	0 10 0	" "
	385	" " " " " "	0 10 0	" "
	386	" " " " " "	0 10 0	" "
FIFTH QUARTER.	392	" " " " " "	—	No action taken. See Table XIII.
	405	Butter	—	To pay costs
	472	Demerara Sugar	—	Withdrawn
	498	Milk	0 10 0	and costs
	508	Demerara Sugar	—	Dismissed
	518	Milk	—	No action taken. See Table XIII.
	522	" " " " " "	—	" " " "
	532	Butter	—	No action taken
SIXTH QUARTER.	535	Preserved Peas	—	Not action taken
	536	" " " " " "	—	" " " "
	537	" " " " " "	—	" " " "
	538	" " " " " "	—	" " " "
	562	Butter	—	" " " "
	589	Milk	1 0 0	Including costs
	593	" " " " " "	—	No action taken. See Table XIII.
	627	" " " " " "	—	" " " "
	633	" " " " " "	2 0 0	and costs
SEVENTH QUARTER.	652	" " " " " "	—	No action taken. See Table XIII.
	668	" " " " " "	2 0 0	and costs
	671	" " " " " "	—	No action taken. See Table XIII.
	680	" " " " " "	1 0 0	and costs
	685	" " " " " "	5 0 0	" "
	686	" " " " " "	—	Dismissed
	697	Butter	—	An informal sample.

TABLE XIV.

Statement showing the number of samples of all kinds, and the number of samples of milk, examined under the Sale of Food and Drugs Acts, in large provincial towns and in the County of Glamorgan during 1907.

Towns.	Estimated Population, 1907.	Total Number of Samples Examined.	Samples per 1,000 of the Population.	Samples Adulterated	Percentage Adulterated	Samples of Milk Examined.	Samples of Milk Adulterated.	Percentage of Milk Samples Adulterated.
Croydon ...	154,342	448	2.9	46	10.2	204	16	7.8
West Ham ...	308,284	1,219	3.9	107	8.7	724	73	10.0
Portsmouth ...	208,291	1,043	5.0	112	10.7	621	59	9.5
Bristol ...	367,979	1,300	3.5	122	9.3	651	83	12.7
Birmingham ...	553,155	2,024	3.6	189	9.3	830	85	10.2
Leicester ...	236,124	416	1.7	5	1.2	218	3	1.3
Nottingham ...	257,489	552	2.1	71	12.8	277	55	19.8
Liverpool ...	746,144	2,167	2.9	199	9.1	906	127	14.0
Bolton ...	182,917	401	2.1	30	7.4	208	23	11.0
Manchester ...	643,148	2,719	4.2	83	3.0	1,181	55	4.6
Salford ...	236,670	917	3.8	27	2.9	445	13	2.9
Bradford ...	290,323	728	2.5	48	6.6	471	25	5.3
Leeds ...	470,268	626	1.3	130	20.7	495	87	17.5
Sheffield ...	455,553	877	1.9	95	10.8	469	70	14.9
Hull ...	266,762	752	2.8	18	2.4	495	14	2.8
Sunderland ...	156,029	241	1.5	36	14.9	122	24	19.6
Newcastle-on-Tyne ...	272,969	739	2.7	78	10.5	426	57	13.3
Cardiff ...	187,620	600	3.2	40	6.6	453	38	8.3
Glamorgan (County jurisdiction) ...	* 601,092	988	1.6	53	5.3	560	45	8.0

* Census, 1901.

Of the total number of samples purchased by the Inspectors during the year, 700 were submitted to the Public Analyst in accordance with the procedure laid down by the Sale of Food and Drugs Act. In addition to these, 104 samples of milk were taken unofficially, and examined at the Cardiff and County Public Health Laboratory. In the event of any of these samples being found defective or adulterated, prosecutions do not follow; the examination is of a preliminary nature with the object of indicating the dealers who are in the habit of adulterating, with a view to future legal proceedings. As these unofficial samples are not taken in accordance with exact methods required by the Act, the dealer is unaware that they are taken for analysis, and it is of interest to notice that whereas 24 per cent. of these were found adulterated only 10.2 per cent. of the official samples of milk were reported by the Public Analyst to be adulterated. Of the 469 samples of milk and skimmed milk, 52 were taken at railway stations and 417 at retail shops or from carts &c. Of the former 11.5 per cent. and of the latter 10.0 per cent. were found adulterated.

The Sale of Food and Drugs Act, so far as the taking of samples for analysis and prosecutions are concerned is enforced by the Inspectors acting under the control of the Medical Officer of Health, i.e. the Inspector of Nuisances and ten Assistant Inspectors. The same officers have been appointed to take samples under the Fertilisers and Feeding Stuffs Act, and under Section 2 of the Butter and Margarine Act, in premises registered as butter factories.

INSPECTION OF FACTORIES AND WORKSHOPS.—The Factory and Workshop Act of 1901 makes considerable alterations in and additions to the duties hitherto falling upon Medical Officers of Health. Under Section 132, the Medical Officer of Health is required in his Annual Report to deal specifically with the administration of the Act (so far as the matters under the charge of the Sanitary Authority are concerned), and to send a copy of this report to the Secretary of State.

The work carried out during the year 1903 is shown in the subjoined tables.

Sec. 101 of the Act imposes important duties on Sanitary Authorities in regard to underground bakehouses. The Section provides that no underground bakehouse shall be used as such unless it was so used at the time of the passing of the Act, i.e., August 17th, 1901, and further, that after the 1st of January, 1904, no underground bakehouse (whenever established), may be used unless the Sanitary Authority is satisfied that it is suitable for the purpose in regard to construction, light ventilation, and in all other respects, and have given it a certificate of suitability. A definition of the term "underground bakehouse" is given for the first time in this Act:—"A bakehouse is to be deemed an underground bakehouse if any room used for baking or for any process incidental thereto, is so situate that the surface of the floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room."

In Cardiff there were only seven underground bakehouses at the time of the passing of the Act of 1901. Four of these have since been abolished as entirely unsuitable for the purpose, and one has been relinquished for other reasons, leaving two for which certificates were granted after completion of alterations required by the Sanitary Authority.

"**FACTORIES**" include all places in which mechanical power is used in aid of the manufacturing processes and certain other industries specified in Part I. of Schedule VI. to the Act, whether mechanical power is used or not. The duty devolving upon the Health Department in connection with factories is confined to the enforcement of Section 22 of the Public Health Acts Amendment Act, 1890, relating to the provision of suitable and sufficient sanitary conveniences. The inspections of Factories referred to in the Tables were in connection with this duty.

"**WORKSHOPS**" include premises (not being factories) in which manual labour is exercised by way of trade or for purposes of gain in or incidental to, the making, altering, repairing, finishing or adapting for sale any article, and to or over which the employer of the persons working there has the right of access or control.

The Workshops Inspectors made 2,436 inspections of workshops, including laundries, during the year. The premises of dressmakers and milliners and any other workshops in which women were employed were inspected by the Women Inspectors. A considerable number of new workshops have been added to the register and the work in this department has been so much increased that the Health Committee has decided to increase the staff in order to carry on the inspection in a more complete manner.

Work places, although not defined in the Act, include any place where work is done permanently and where people assemble together to do work permanently of some kind or another, such as stables, kitchens of restaurants, &c. Thirty-seven inspections of such places have been made during the year.

HOME WORK.—Eighty-four lists of outworkers were received giving the names and addresses of 364 work-people engaged in home work. Great importance is attached to the inspection of places in which these outworkers are engaged, the object being to prevent unwholesome conditions or nuisances injurious to the health of the workers. Sections 107–115 of the Act of 1901 give power to the Local Authority to prohibit work being done by outworkers (1) in dwellings which are injurious or dangerous to the health of the workers themselves, *e.g.* through overcrowding, want of ventilation, or other insanitary conditions, (2) in premises where there is dangerous infectious disease. In 21 instances infectious disease of some kind was found upon the premises of outworkers and orders were made prohibiting the occupier of the factory or workshop from giving out work to the persons living upon the premises until they were free from infection. Nuisances found upon these premises were abated in the ordinary way under the provisions of the Public Health Acts and Sanitary By-Laws.

The following information is set forth on the form supplied by the Secretary of State a copy of which was forwarded to the Home Office in January of the present year.

TABLE XV.

INSPECTION OF FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES AND
HOMEWORK.

I.—INSPECTION.

PREMISES	NUMBER OF	
	Inspections	Written Notices
Factories (including Factory Laundries)	114	58
Workshops (including Workshop Laundries)	2,436	219
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	37	13
Total	2,587	290

2.—DEFECTS FOUND.

PARTICULARS	NUMBER OF DEFECTS	
	Found	Remedied
Nuisances under the Public Health Acts :—		
Want of cleanliness	72	72
Want of ventilation	15	15
Overcrowding	7	7
Want of drainage of floors	2	2
Other nuisances	95	95
insufficient	9	9
*Sanitary accommodation	158	158
unsuitable or defective	4	4
not separate for sexes	1	1
Illegal occupation of underground bakehouse (Sec. 101)	1	1
Breach of special sanitary requirements for bakehouses Sec. 97 to 100).	1	1
Total	364	364

* Section 22 of the Public Health Acts Amendment Act, 1890, adopted. Standard according to Order of Secretary of State under Section 9, Factory and Workshop Act, 1901.

3—HOME WORK.

Nature of Work.	Outworkers' Lists, Section 107						Number of Inspections of Outworkers' Premises.	Outwork in Infected Premises, Sections 109, 110.	
	Lists received from Employers.				Number of Addresses of Outworkers received from other Councils.	Number of Addresses of Outworkers forwarded to other Councils.		Instances.	Orders made (S. 110).
	Twice in the Year.		Once in the Year.						
	Lists.	Outworkers.	Lists.	Outworkers.					
Wearing Apparel :—									
(1) Making, &c....	84	364	—	—	1	1	182	21	21
(2) Cleaning and Washing	...	...	...	...	...	...	...	...	...

4.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the Year.	Number
Bakers	185
Tailors	191
Dressmakers	175
Milliners	60
Bootmakers	76
Other	369
Total number of Workshops on Register	1,056

5.—OTHER MATTERS.

CLASS.	NUMBER
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (Sec. 133) ...	36
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts but not under the Factory Act :—	
Notified by H.M. Inspector	28
Reports (of action taken) sent to H.M. Inspector	28
Other (Sec. 127 Sub. Sec. 3.)	86
Underground Bakehouses in use at the end of the year	2

INSPECTION OF FACTORIES AND WORKSHOPS.

During the year 1908 a large number of factories and workshops were inspected. The results of these inspections are given in the following Tables :—

TABLE XVI.

Nature of Factories and Workshops Inspected.	Number on Register.			Total.	Number of Inspections.
	Workshops.	Factories.	Domestic Workshops.		
Bakers	185	17	—	202	804
Sugar Boilers	8	2	1	11	11
Tailors	191	1	120	312	424
Dressmakers	175	1	80	256	482
Milliners	60	—	4	64	69
Corset Makers	1	—	2	3	1
Shirt and Hose Manufacturers	4	—	—	4	2
Bootmakers	76	3	—	79	80
Saddlers	8	—	—	8	14
Oilskin Manufacturers	4	—	—	4	3
Umbrella Makers	2	—	1	3	—
Laundries	35	10	9	54	141
Carpenters	24	10	—	34	30
Cabinet Makers	19	2	—	21	35
Upholsterers	10	—	—	10	9
Picture Frame Makers	10	2	—	12	28
Coopers	3	1	—	4	1
Pattern Makers	1	—	—	1	1
Bottlers	6	11	—	17	16
Packers	19	—	—	19	19
Tinsmiths	7	—	—	7	14
Blacksmiths	19	3	—	22	23
Paper Bag Makers	5	1	—	6	6
Box makers	—	3	—	3	21
Watch Makers	9	—	—	9	4
Dentists	1	—	—	1	—
Blue Factory	—	1	—	1	1
Tent and Sail Maker	6	—	—	6	5
Basket Makers	5	—	—	5	6

Nature of Factories and Workshops Inspected.	Number on Register.			Total.	Number of Inspections.
	Workshops.	Factories.	Domestic Workshops.		
Blind Makers	7	—	—	7	6
Truss Makers	1	—	—	1	—
Bed Makers	4	1	—	5	8
Mattress Makers	—	1	—	1	—
Tobacco Pipe Makers	—	1	1	2	11
Musical Instrument Makers	4	—	—	4	5
Sewing Machine and Perambulator Makers	2	1	—	3	17
Cycle Makers	13	4	—	17	9
Electro Platers	—	1	—	1	8
Electricians	2	—	—	2	5
Cigar Manufacturers	—	1	—	1	—
Cigarette Manufacturers	2	—	—	2	1
Firewood Cutters	—	5	—	5	10
Stable Yards	—	—	—	—	47
Coach and Waggon Builders	7	5	—	12	20
Engineers	3	21	—	24	10
Wire Workers	1	1	—	2	1
File Works	—	1	—	1	—
Scale Makers	3	—	—	3	10
Oil and Colour Works	—	5	—	5	8
Rope Works	—	1	—	1	—
Hairdressers	26	—	—	26	82
Photographers	9	—	—	9	4
India Rubber Works	1	2	—	3	—
Aerated Water Manufacturers	4	6	—	10	9
Stone Masons	1	—	—	1	—
Cement Works	—	2	—	2	1
Asphalte Works	—	1	—	1	—
Rag Sorters	6	—	—	6	26
Plaster Moulders	2	—	—	2	3
Biscuit Works	—	2	—	2	—
Flour Mills	—	4	—	4	—
Furrier	1	—	—	1	—
Tanner	—	1	—	1	—
Jam Factory	—	1	—	1	—
Boat Builders	4	3	—	7	1
Saw Mills	1	7	—	8	14
Brick and Tile Works	—	1	—	1	—
Patent Fuel Works	—	1	—	1	2
Plumbers	7	1	—	8	5
Engravers	2	—	—	2	3
Printers	1	22	—	23	85
Bookbinders	—	1	—	1	1
Chemical and Pickle Works	1	1	—	2	1
Copper Works	—	1	—	1	—
Milk Sterilizer	1	1	—	2	2
Opticians	1	1	—	2	—
Heating Apparatus Fitter	1	—	—	1	1
Bottle Sorter	2	—	—	2	19
Sack Repairers	5	—	—	5	6
Decorators	1	—	—	1	—
Monumental Masons	5	—	—	5	1
Wheelwrights	14	—	—	14	13
Black and White Artist	1	—	—	1	—

Nature of Factories and Workshops Inspected.	Number on Register.			Total.	Number of Inspections.
	Workshops.	Factories.	Domestic Workshops.		
Tallow Melter and Soap Boiler	...	2	—	2	1
Chaff Cutter	...	—	1	1	—
Motor Manufacturers	...	6	3	9	14
Brass Founders	...	2	4	6	1
Iron Founders	...	—	4	4	5
Carpet Beater	...	1	—	1	1
Brattice Cloth Manufacturers	...	—	2	2	5
Lath Renders	...	2	—	2	1
Warehouses	...	3	—	3	25
Cake Factory	...	—	1	1	1
Papier Mache Manufacturer	...	—	1	1	1
Dyers	...	1	—	1	7
Cork Cutters	...	—	1	1	2
Maltsters	...	—	1	1	1
Totals	...	1,056	193	1,468	2,769

SHOP HOURS ACT, 1904.—This Act, which came into operation during the year 1904, enables Local Authorities to make Closing Orders fixing the hours of closing on the several days of the week, either in the entire area of the district of the Local Authority or in any specified part thereof. The Closing Order may apply to all shops, or to shops of any specified class.

The Act requires that the occupiers of shops desirous of promoting early closing should apply to the Local Authority, who may then take further steps in accordance with the provision of the Act.

Number of Shops and Persons affected by Closing Orders made under the Shop Hours Act, 1904 :—

Number of Order.	Trade.	Area.	Number of shops.	Approximate number of persons.
1	Barbers	Whole City	181	400
2	Bootmakers	Grangetown	38	64
3	Bootsellers	Central Area	42	118
4	"	Roath, Cathays and Park	107	182
5	"	Riverside and Canton	48	90
Totals			416	854

OFFENCES.

Shops open after Closing Time	...	...	...	...	12
Not exhibiting Notices	...	...	...	...	12
					24

LEGAL PROCEEDINGS.

Offence.	Result.	Order No.
Not exhibiting notice	To pay costs	1
Ditto. ditto.	Fined 2/6	1
Ditto. ditto.	Withdrawn	1
Ditto. ditto.	Fined 5/-	1
Ditto. ditto.	Fined 5/-	1
Ditto. ditto.	Cautioned	1
Ditto. ditto.	Withdrawn	1
Ditto. ditto.	Withdrawn	1
Ditto. ditto.	Cautioned	1
Serving after Closing Time	Fined 10/-	1
Ditto. ditto.	Cautioned	1
Ditto. ditto.	Fined 2/6	1
Ditto. ditto.	Withdrawn	1
Ditto. ditto.	Fined 2/6	1
Not exhibiting Notice	Fined 5/-	3
Serving after Closing Time	Fined 20/- and costs	3
Ditto. ditto.	Fined 10/- and costs	3
Ditto. ditto.	Withdrawn	3
Ditto. ditto.	Fined 5/- and costs	3
Ditto. ditto.	Fined 10/-	3
Ditto. ditto.	Withdrawn	3
Not exhibiting Notice	Fined 5/- and costs	4
Ditto. ditto.	Cautioned	4
Serving after Closing Time	Fined 2/6	5

TABLE XVIII.

Nature of Shops Inspected.					Number of Inspections.	Employing Young Persons.	Employing Females.	Seats Provided.
Boot Dealers	...	...	...	...	1,646	98	124	124
Butchers	...	...	...	...	42	30	—	—
Chemists	...	...	...	...	6	4	—	—
Drapers	...	...	...	...	111	97	112	112
Fancy Dealers	...	...	...	...	22	15	21	21
Fruiterers	...	...	...	...	5	1	3	3
Grocers	...	...	...	...	51	36	5	5
Hairdressers and Tobacconists	...	...	...	...	1,466	120	163	163
Ironmongers	...	...	...	...	8	8	—	—
Newsagents and Stationers	...	...	...	...	78	43	65	65
Totals	...	...	...	...	3,435	452	493	493

REPORT OF THE INSPECTOR OF NUISANCES TO THE MEDICAL OFFICER OF
HEALTH FOR THE YEAR ENDING DECEMBER 31st, 1908.

NUISANCES :—

Notices issued	...	...	...	...	...	...	3,284
Nuisances abated	...	...	...	...	...	...	2,292
Drains tested	...	...	...	...	...	...	421
Drains on being tested found defective	...	...	...	...	...	...	240
Animals so kept as to be a nuisance	...	...	...	...	...	...	91
Offensive accumulations	...	...	...	...	...	...	203
Defective drains repaired	...	...	...	...	...	...	380
Drains unstopped and cleansed	...	...	...	...	...	...	342
Offensive W.C.'s cleansed	...	...	...	...	...	...	167
Flushing apparatus to W.C.'s repaired	...	...	...	...	...	...	151
Flushing apparatus provided	...	...	...	...	...	...	8
Water laid on to dwelling houses	...	...	...	...	...	...	76
Dirty houses cleansed or limewashed	...	...	...	...	...	...	334
Overcrowding of dwelling houses	...	...	...	...	...	...	35
Other nuisances abated	...	...	...	...	...	...	1,654

OFFENSIVE TRADES :—

Inspections	...	...	...	...	...	...	735
Nuisances found	34

SHOPS, &c. :—

Inspections of Butchers and Provision Shops and Stores	3,093
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SEAMEN'S AND COMMON LODGING HOUSES :—

Seamen's Lodging Houses on Register	121
Common Lodging Houses on Register	...	...	...	...	...	...	30
Day inspections	...	...	...	...	...	...	3,894
Night inspections	...	...	...	...	...	...	184

MORTUARY :—

Bodies removed to Mortuary (55 males, 9 females)	...	...	...	...	...	...	64
Post-mortem examinations performed	...	...	...	...	...	...	21

The following Table shows the number of houses inspected and results of inspection during 1908 :—

WARD.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.'s.	Defective Traps.	Number of W.C.'s.	W.C.'s. not supplied with Water.	Dampness of Premises.	Houses Over-crowded.	Other Nuisances Discovered.
Central	422	13	7	8	3	419	292	34	—	125
South	193	1	4	8	1	190	98	38	—	91
Cathays	511	12	7	20	—	511	480	83	—	188
Adamsdown	501	14	11	26	6	529	433	96	5	197
Riverside	339	3	6	14	6	358	256	—	1	125
Canton	541	12	6	49	1	542	474	—	3	193
Grangetown	318	22	3	18	10	320	239	118	—	168
Roath	406	6	6	13	1	417	345	1	—	89
Park	248	11	4	18	2	249	174	83	—	104
Splott	219	11	2	17	4	220	196	62	2	101
Totals	3,698	105	56	191	34	3,755	2,987	515	11	1,381

MAGISTERIAL PROCEEDINGS.

	Number of Prosecutions.	Fines. £ s. d.
Byelaws as to Seamen's Lodging Houses	25	30 6 0
Public Health Act, 1875 (Sec. 117)	3	25 10 0
Towns Improvement Clauses Act, 1847 (Sec. 131)	2	6 0 0
Dairies, Cowsheds and Milkshops Orders	2	8 0 0
Sale of Food and Drugs Act, 1899 (Sec. 9)	2	0 10 0
Public Health Act, 1875 (Sec. 95)	1	—
Totals	35	£70 6 0

T. W. WARREN,
INSPECTOR OF NUISANCES.

VITAL STATISTICS.—The statistics in this report are based upon the Registrar General's estimate of the population of Cardiff for the middle of the year 1908. This estimate is given as 191,464.

The population enumerated at the census at the end of March, 1901, amounted to 164,333 persons, being an increase of 27·5 per cent. since the census of 1891; the rate of increase being considerably less than that of the preceding inter-censal period, which slightly exceeded 55 per cent.

The Registrar General's method of estimating the annual populations of towns is based on the assumption that the rate of increase which had prevailed in the last completed inter-censal period has since been maintained. This method, when applied to the country as a whole, gives fairly accurate results, but when individual towns are under consideration the error may be considerable, and in that case the birth-rates and rates of mortality become more and more unreliable each succeeding year after the last census.

The enumerated population of Cardiff at the census of 1891 was 128,915. At the census of 1901 it was 164,333, whereas the estimated population for that year was 200,808. The effect of this error upon the rates of mortality since 1891 is shown in Table XXVIII, in which corrections have been made, based upon the actual increase in the population during the last inter-censal period.

The rapid increase in the population in the Urban District of Cardiff is shown in the Census returns since the year 1801 as follows :—

TABLE XIX.

Year.					Census Population.
1801	...	...	...	...	1,870
1811	...	...	...	...	2,577
1821	...	...	...	...	3,521
1831	...	...	...	...	6,187
1841	...	...	...	...	10,077
1851	...	...	...	...	18,351
1861	...	...	...	...	32,054
1871	...	...	...	...	39,536
1881	...	...	...	...	85,371
1891	...	...	...	...	128,915
1901	...	...	...	...	164,333

The following Table gives the population in each year since the last census, estimated in accordance with the method adopted by the Registrar General.

TABLE XX.

Year.					Estimated Population.
1902	...	...	...	...	168,909
1903	...	...	...	...	172,598
1904	...	...	...	...	176,313
1905	...	...	...	...	180,054
1906	...	...	...	...	183,823
1907	...	...	...	...	187,620
1908	...	...	...	...	191,446

There is some reason for believing that at the end of the present inter-censal period the estimate of the population, will again prove too high, although not to the same extent as on the occasion alluded to. In order therefore to check to some extent the accuracy of the official estimate, a local enumeration is made annually in June of the inhabited houses in the district. This number is multiplied by 5·8, the average number of inmates per house, as given in the last census. The result of this enumeration is given in Table I. This method is also to some extent fallacious, as the average number of inmates in 1908 may not correspond with that of 1901. The only satisfactory method of obtaining a more accurate estimate of the population would be by making a more frequent census enumeration. A quinquennial census would remove some of the statistical inaccuracies which are now under the present conditions unavoidable.

The following Table gives the population of Cardiff, at various ages, estimated to the middle of 1908, in accordance with the method adopted by the Registrar General :—

TABLE XXI.

AGES.	PERSONS.	MALES.	FEMALES.
All ages	191,446	95,069	96,377
Under 5 years	24,124	11,891	12,233
5-10 years	22,059	11,038	11,021
10-15 " " " " "	19,820	9,882	9,938
15-20 " " " " "	18,902	9,141	9,761
20-25 " " " " "	18,948	8,904	10,044
25-30 " " " " "	17,520	8,632	8,888
30-35 " " " " "	15,273	7,720	7,553
35-40 " " " " "	13,616	6,961	6,655
40-45 " " " " "	11,120	5,867	5,253
45-50 " " " " "	8,581	4,504	4,077
50-55 " " " " "	6,932	3,554	3,378
55-60 " " " " "	5,051	2,559	2,492
60-65 " " " " "	3,851	1,885	1,966
65-70 " " " " "	2,592	1,177	1,415
70-75 " " " " "	1,668	766	902
75-80 " " " " "	880	382	498
80 years and upwards ...	509	206	303

The following is a summary of the vital statistics for the year 1908 :—

Estimated Population 191,446

Births	5,172	Birth-rate per 1,000	27.0
Deaths	2,538	Death-rate per 1,000	13.2
Deaths from Zymotic Diseases ...	219	Zymotic death-rate per 1,000 ...	1.14
Deaths under one year of age ...	644	Deaths under one year per 1,000 births registered	124

Causes of Death.	Number of Deaths.	Death-rate per 1,000.
Measles	5	0.02
Scarlet Fever	10	0.05
Diphtheria	22	0.11
Enteric Fever	7	0.03
Whooping Cough	48	0.25
Diarrhoea	127	0.66
Respiratory Diseases	392	2.04
Phthisis	218	1.14
Other Tubercular Diseases	94	0.49

TABLE XXII.

Table showing the birth-rate, death-rate, zymotic death-rate per 1,000 persons living, and rate of infant mortality in Cardiff, compared with the rates in England and Wales during 1908, and with the rates in Cardiff during previous years :—

	Birth-rate.	Death-rate.	Zymotic Death-rate.	Deaths under 1 year per 1,000 births Registered.
England and Wales	26.5	14.7	1.29	121
76 great towns	27.0	14.9	1.59	123
142 smaller towns	26.0	14.0	1.26	124
England and Wales, less the 218 towns	26.2	14.7	0.99	110
Cardiff	27.0	13.2	1.14	124
Cardiff (10 years 1898-1907)	30.4	15.6	1.92	143

MARRIAGES.—The return of the number of marriages in the City of Cardiff during the years 1899-1908, together with the rate of persons married per 1,000 of the population, is given below :—

TABLE XXIII.

YEAR.	NUMBER OF MARRIAGES.	RATE PER 1,000 PERSONS LIVING.
1899	1,719	21.8
1900	1,706	21.1
1901	1,641	19.8
1902	1,677	19.8
1903	1,668	19.3
1904	1,563	17.7
1905	1,650	18.8
1906	1,769	19.2
1907	1,743	18.5
1908	1,759	18.3

BIRTHS.—During the year 1908 the births registered in the city numbered 5,172 ; of these 2,644 were males, and 2,528 females. The number of births corresponded to an annual birth-rate of 27.0 per 1,000 persons living.

The birth-rate in England and Wales was 26.5, and in the 76 large towns 27.0 per 1,000 for the corresponding year.

The following Table indicates the gradual and progressive decline which has taken place in the birth-rate in Cardiff during recent years. During the ten years ending 1890, the birth-rate averaged 41.0 per 1,000, as compared with 30.4, the average rate during 1898-1907.

TABLE XXIV.

YEAR.	NUMBER OF BIRTHS.		BIRTH-RATE PER 1,000.	
1891	...	4,737	...	36.5
1892	...	4,789	...	35.0
1893	...	5,121	...	36.0
1894	...	5,103	...	34.2
1895	...	5,321	...	34.1
1896	...	5,591	...	34.3
1897	...	5,279	...	35.1
1898	...	5,520	...	35.9
1899	...	5,309	...	33.7
1900	...	5,198	...	35.2
1901	...	5,206	...	31.4
1902	...	5,278	...	31.2
1903	...	5,250	...	30.4
1904	...	5,208	...	29.5
1905	...	5,140	...	28.5
1906	...	5,001	...	27.2
1907	...	4,865	...	25.9
1908	...	5,172	...	27.0

The following Table shows the number of legitimate and illegitimate births, male and female, and the number of deaths under one year per 1,000 births registered in each Municipal Ward and in the Union Workhouse during the year 1908 :—

TABLE XXV.

MUNICIPAL WARDS.	Legitimate.		Illegitimate.		Totals.		Totals.	Deaths under One Year per 1000 births registered.
	Males.	Females.	Males.	Females.	Males.	Females.		
Central	108	118	8	2	116	120	236	135
South	128	138	3	2	131	140	271	140
Cathays	327	284	2	5	329	289	618	99
Adamsdown	214	206	2	8	216	214	430	114
Riverside	210	199	4	9	214	208	422	128
Canton	343	352	10	9	353	361	714	127
Grangetown	409	393	5	3	414	396	810	133
Roath	211	210	7	6	218	216	434	115
Park	292	238	8	6	300	244	544	97
Sploott	298	288	3	2	301	290	591	130
Union Workhouse	8	5	44	45	52	50	102	—
Totals	2,548	2,431	96	97	2,644	2,528	5,172	124

Throughout the country the birth-rate has of late years declined in a marked manner as will be seen in the following Table.

The decline commenced about the year 1880 and has continued uninterruptedly since that date. The birth-rate in England and Wales, which averaged 35·5 per 1,000 in the period 1861—1880, fell as follows :—

TABLE XXVI.

PERIOD.	BIRTH-RATE.
1881—1885 ...	33·5 per 1,000
1886—1890 ...	31·4 „
1891—1895 ...	30·5 „
1896—1900 ...	29·3 „
1901 ...	28·5 „
1902 ...	28·6 „
1903 ...	28·4 „
1904 ...	27·9 „
1905 ...	27·2 „
1906 ...	27·0 „
1907 ...	26·3 „
1908 ...	27·0 „

TABLE XXVII.

Shows the annual birth-rate per 1,000 in some of the large towns in England and Wales for the 10 years 1899 to 1908 inclusive :—

LARGE TOWNS.	Annual birth-rate per 1,000 persons living									
	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908
London ...	29·4	28·6	29·0	28·5	28·5	28·0	27·1	26·6	25·6	25·2
West Ham ...	29·7	28·6	35·2	34·1	33·7	32·1	30·5	30·5	28·6	28·8
Croydon ...	25·1	24·9	26·4	26·1	26·3	26·1	26·4	25·7	25·7	25·4
Brighton ...	24·9	23·6	24·2	24·3	24·3	23·5	22·9	22·3	21·1	21·3
Portsmouth ...	26·2	25·7	27·9	27·1	27·9	28·2	27·7	28·6	27·9	28·4
Plymouth ...	29·8	28·4	26·8	27·0	25·5	25·3	25·6	23·9	23·2	22·2
Bristol ...	29·2	27·8	27·0	27·5	27·4	26·0	26·9	25·8	24·3	23·1
Swansea ...	27·7	26·7	30·1	31·1	32·0	30·5	30·9	31·9	32·5	33·1
Wolverhampton ...	35·3	33·5	31·7	31·6	30·5	29·8	28·7	27·4	26·4	25·8
Birmingham ...	34·3	32·7	32·1	31·8	31·8	31·5	29·2	29·2	28·3	28·4
Norwich ...	29·1	28·4	28·4	27·9	27·9	27·6	27·2	26·0	25·0	25·2
Leicester ...	29·4	28·2	29·0	29·1	27·4	26·6	25·8	25·3	23·2	23·4
Nottingham ...	28·9	27·7	28·4	27·8	28·3	27·8	26·5	26·5	26·8	26·6
Derby ...	28·1	26·9	27·8	28·0	27·0	27·2	25·5	25·0	25·1	25·9
Birkenhead ...	29·9	29·0	29·0	32·7	30·8	33·1	32·0	31·8	31·2	31·4
Liverpool ...	35·6	36·0	32·1	22·5	33·4	33·5	33·2	32·6	31·8	31·7
Bolton ...	29·9	34·7	27·5	27·2	27·0	26·9	25·1	25·5	24·4	24·5
Manchester ...	32·6	32·3	29·1	32·8	32·1	31·3	29·4	29·0	28·7	29·1
Salford ...	33·9	33·1	29·2	33·8	32·2	31·7	30·5	30·2	29·2	29·6
Oldham ...	24·8	24·1	24·6	26·1	25·6	24·9	24·3	26·9	26·5	28·0
Burnley ...	25·3	25·3	27·4	29·1	27·2	27·2	26·5	27·6	28·5	28·2
Blackburn ...	27·0	25·1	26·5	25·6	25·1	23·5	24·0	25·6	24·8	25·0
Preston ...	30·1	29·0	30·4	28·9	30·4	28·2	28·1	28·5	26·8	27·7
Huddersfield ...	23·0	22·8	22·7	24·4	23·8	23·7	23·8	24·2	23·2	24·4
Halifax ...	23·1	23·1	22·5	21·3	21·1	20·1	19·2	19·2	17·4	19·0
Bradford ...	23·4	23·1	23·1	23·0	23·3	22·0	21·0	20·6	20·0	20·2
Leeds ...	30·6	30·4	30·0	29·8	29·4	28·0	27·1	26·1	24·9	24·8
Sheffield ...	34·6	34·2	33·0	33·4	33·2	31·9	29·7	29·9	30·9	30·7
Hull ...	34·3	32·9	33·0	32·1	31·3	30·8	29·8	29·6	28·8	30·2
Sunderland ...	35·7	35·8	35·5	35·9	35·1	34·4	34·2	34·8	34·3	33·0
Gateshead ...	36·6	36·3	36·8	36·7	35·8	34·4	32·7	31·9	30·7	30·9
Newcastle-on-Tyne ...	31·4	30·4	32·1	32·6	31·1	30·5	32·1	30·6	29·7	29·7
CARDIFF ...	33·7	35·2	31·4	31·2	30·5	29·5	28·5	27·2	25·9	27·0

DEATHS.—The average death-rate in Cardiff in the ten years 1898–1907 was 15·6 per 1,000. The rate of mortality for the year 1908 was 13·2 per 1,000 persons living. It will be seen on reference to Table XXVIII that this death-rate was the lowest on record since the first publication of vital statistics in the year 1852.

In the first quarter of the year 1908 the number of deaths registered in the City of Cardiff at all ages, and from all causes, was 719, corresponding to an annual death-rate of 15·0 per 1,000 persons living, as compared with 16·7, the rate in the corresponding quarter of 1907, and with 18·0, the average rate in the 76 large towns of England and Wales. The death-rates during this quarter ranged from 9·8 per 1,000 in Hornsey, 11·8 in East Ham, 12·6 in Walthamstow, and 13·3 in Tottenham to 22·0 in Sunderland, 22·5 in Hanley and in Swansea, 22·6 in Rhondda, 23·2 in Merthyr Tydfil, and 24·2 in Liverpool. Of the 719 deaths from all causes during the first quarter, 38 were ascribed to the principal infectious diseases; these deaths were equal to an annual death-rate of 0·80 per 1,000, as compared with 1·00, the rate in the corresponding quarter of 1907, and with 1·4, the average rate in the 76 large towns. The infant mortality in this quarter was at the rate of 121 deaths under one year of age per 1,000 births registered, and corresponded exactly with the rate in the first quarter of 1907. The rate of infant mortality in the 76 large towns in this quarter was equal to 124 deaths under one year per 1,000 births.

In the second quarter of the year the number of deaths registered was 558, corresponding to an annual death-rate of 11·7 per 1,000 persons living, as compared with 13·2, the rate in the second quarter of 1907 and with 13·8, the average rate in the 76 large towns. The death rates during this quarter ranged from 9·1 per 1,000 in Hornsey, 9·3 in Walthamstow, 10·0 in Willesden, and 10·1 in Leyton to 17·8 in Merthyr Tydfil, 18·4 in Oldham and in Stockton-on-Tees, and 19·5 in Hanley. Of the 558 deaths from all causes during the second quarter 42 were due to the principal infectious diseases; these deaths were equal to an annual death-rate of 0·90 per 1,000, as compared with 0·6 the rate in the corresponding quarter of 1907, and with 1·1, the average rate in the 76 large towns. The infant mortality in this quarter was at the rate of 98 deaths under one year of age per 1,000 births, as compared with 99 the rate in the corresponding quarter of 1907. The rate of infant mortality in the 76 large towns in this quarter was equal to 100 deaths under one year per 1,000 births.

In the third quarter of the year the number of deaths registered was 564, corresponding to an annual death-rate of 11·8 per 1,000 persons living, as compared with 13·4, the rate in the third quarter of 1907 and with 13·3, the average rate in the 76 large towns. The death-rates during this quarter ranged from 6·7 per 1,000 in Hornsey, 8·0 in Willesden, 8·5 in Walthamstow, and 8·7 in Hastings to 18·1 in Merthyr Tydfil, 18·6 in Wigan, 19·0 in Middlesbrough and in Rhondda, and 19·9 in Stockport. Of the 564 deaths from all causes during the third quarter, 104 were due to the principal infectious diseases, including Zymotic Diarrhoea which caused 86 deaths. The deaths from these diseases were equal to an annual death-rate of 2·2 per 1,000, as compared with 3·7 in the corresponding quarter of 1907, and with 2·3, the average rate in the 76 large towns. The infant mortality in this quarter was at the rate of 158 deaths under one year of age per 1,000 births, as compared with 114, the rate in the corresponding quarter of 1907, and with 146, the rate in the 76 large towns.

In the fourth quarter the number of deaths registered was 633, corresponding to an annual death-rate of 12·3 per 1,000, as compared with 15·8, the rate in the fourth quarter of 1907, and with 14·8, the average rate in the 76 large towns. The death-rate during this quarter ranged from 7·6 per 1,000 in Hornsey, 8·9 in Kings Norton, 9·1 in East Ham, 9·5 in Leyton, 9·9 in Hastings, to 19·0 in Stockport, 19·1 in Rotherham, 20·4 in Tynemouth, and 21·9 in Middlesbrough. Of the 633 deaths from all causes during the fourth quarter, 35 were due to the principal infectious diseases; these deaths were equal to an annual death-rate of 0·7 per 1,000, as compared with 2·1 in the corresponding period of 1907, and with 1·5, the average rate in the 76 large towns. The infant mortality was at the rate of 121 deaths under one year per 1,000 births, as compared with 192 in the fourth quarter of 1907, and with 146, the average rate in the 76 large towns.

The following Table gives the vital statistics in decennial periods since 1852, and shows the marked decline in the general death-rate, and in the death-rate from zymotic diseases, and also in the birth-rate in successive periods :—

TABLE XXVIII.

Years	Population	Births	Birth-rate per 1,000	Deaths	Death-rate per 1,000	Deaths from Zymotic Diseases	Zymotic Death-rate per 1,000
1852—1861	25,889	1,144	44.2	756	29.2	222	8.58
1862—1871	36,152	1,364	37.7	875	24.2	167	4.62
1872—1881	66,639	2,433	36.5	1,335	20.0	218	3.27
1882—1891	104,420	4,166	39.9	2,255	21.6	347	3.32
1892—1901	148,606	5,241	35.3	2,674	18.0	355	2.39
1902	168,909	5,278	31.2	2,865	16.9	459	2.72
1903	172,598	5,250	30.4	2,496	14.4	232	1.34
1904	176,313	5,208	29.5	2,695	15.2	320	1.81
1905	180,054	5,140	28.5	2,443	13.5	216	1.14
1906	183,823	5,001	27.2	2,618	14.2	248	1.34
1907	187,620	4,865	25.9	2,819	15.0	353	1.91
1908	191,446	5,172	27.0	2,538	13.2	219	1.14

TABLE XXIX.

Showing the number of deaths and death-rates at various age periods during the last five years :—

AGES.	Number of Deaths.					Death-rate per 1,000 persons. living at each Age Group.				
	1904	1905	1906	1907	1908	1904	1905	1906	1907	1908
Under 5 years	1,031	860	904	1,026	838	46.4	37.9	39.0	43.4	34.7
5 to 15	117	102	110	98	111	3.0	2.6	2.7	2.3	2.6
15 „ 25	130	125	135	147	127	3.7	3.5	3.7	3.9	3.3
25 „ 65	949	906	1,006	1,008	962	12.6	11.7	12.8	12.5	11.7
65 years and upwards	468	450	463	540	500	89.9	84.5	85.3	97.5	88.5
At all ages	2,695	2,443	2,618	2,819	2,538	15.2	13.5	14.2	15.0	13.2

TABLE XXX.

Death-rates from all causes per 1,000 persons living in the several municipal wards :—

	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908
Cardiff	15·3	13·7	15·7	16·7	13·9	14·7	13·2	13·8	14·8	13·0
Roath Ward	15·1	14·5	11·9	14·0	12·4	13·3	11·4	12·3	11·9	10·7
Park Ward	11·0	10·5	12·3	10·0	8·7	9·3	8·8	8·9	9·9	8·9
Splott „	14·1	14·7	13·3	15·7	11·2	15·0	12·5	13·9	13·7	13·2
Central „	14·2	16·3	17·3	17·4	15·0	14·2	14·0	14·4	15·2	12·8
South „	15·2	15·7	16·7	15·6	15·3	15·2	13·0	16·4	17·1	15·4
Cathays „	14·2	11·3	11·8	13·5	9·8	11·1	10·1	11·2	11·1	10·0
Adamsdown Ward	20·7	15·7	16·1	20·1	16·1	15·5	17·6	17·2	20·3	15·7
Riverside „	11·6	9·1	11·0	11·9	14·3	11·3	9·4	9·2	10·1	10·7
Canton „	14·0	11·1	13·9	12·1	10·7	12·0	9·8	9·9	10·4	10·3
Grangetown „	16·3	15·5	14·6	15·7	13·6	15·2	14·3	14·4	17·0	13·4

TABLE XXXI.

Shows the annual death-rates per 1,000 in some of the large towns in England and Wales for the 10 years, 1899—1908, inclusive:—

LARGE TOWNS.	Annual death-rate per 1,000 persons living.									
	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
London	19.8	18.8	17.6	17.7	15.7	16.1	15.6	15.7	14.6	13.8
West Ham	16.7	15.9	18.0	17.1	15.3	16.7	15.5	15.3	14.6	13.9
Croydon	15.0	14.6	12.9	14.0	11.8	13.8	12.7	13.4	12.4	12.8
Brighton	19.0	17.8	16.5	15.8	14.3	16.6	10.9	14.4	14.7	14.7
Portsmouth	19.7	17.3	17.9	16.8	14.7	16.8	16.6	14.8	10.0	13.8
Plymouth	21.7	20.8	17.9	17.0	16.5	18.7	16.8	16.4	14.7	15.0
Bristol	18.2	16.7	16.0	17.4	14.3	15.4	14.7	14.3	13.2	13.6
Swansea	18.1	17.1	18.6	16.1	18.6	17.7	16.5	17.9	17.9	18.5
Wolverhampton	21.8	22.5	16.9	16.4	15.5	14.6	14.8	14.7	15.1	14.3
Birmingham	20.8	21.5	20.5	18.6	17.8	19.3	16.1	16.7	16.2	15.9
Norwich	17.3	17.6	18.7	16.7	15.2	18.2	16.5	16.7	14.6	14.1
Leicester	17.7	17.4	15.9	14.9	14.2	14.5	13.4	14.4	12.7	13.0
Nottingham	20.0	19.1	18.5	16.9	16.9	17.5	16.6	16.0	17.5	15.2
Derby	16.9	17.5	15.2	13.9	13.6	15.1	15.0	14.0	14.3	13.1
Birkenhead	19.2	16.8	18.7	17.7	16.8	19.8	15.3	17.7	15.4	15.8
Liverpool	26.4	25.7	22.3	22.5	20.5	21.9	19.2	20.3	19.0	19.2
Bolton	19.9	19.5	18.2	16.9	17.5	16.9	15.4	15.5	16.8	15.4
Manchester	24.6	24.1	22.1	20.0	19.7	21.3	18.0	19.0	18.1	18.2
Salford	23.8	25.1	21.7	19.3	19.0	21.0	17.1	18.5	17.7	17.8
Oldham	20.5	19.6	19.6	19.1	18.6	18.3	18.8	18.8	19.4	19.8
Burnley	19.6	16.3	19.0	19.5	19.2	20.0	16.5	19.7	17.6	17.9
Blackburn	19.1	20.5	19.5	16.9	15.7	17.2	16.4	16.4	16.9	15.7
Preston	22.8	24.0	21.0	19.1	18.7	17.8	16.4	19.2	19.1	18.0
Huddersfield	16.2	16.6	16.7	17.8	16.7	17.5	16.9	17.3	16.9	17.1
Halifax	18.3	18.1	16.4	15.7	15.0	15.5	15.3	15.5	14.3	14.1
Bradford	18.4	16.4	16.8	15.8	16.4	17.5	15.1	16.1	14.8	15.5
Leeds	19.1	20.0	19.3	17.6	16.6	17.9	15.3	15.8	15.3	15.3
Sheffield	22.2	22.6	20.4	17.1	18.6	16.8	17.0	16.7	17.1	15.8
Hull	19.3	19.7	18.6	17.2	16.9	18.0	16.0	17.0	16.1	16.2
Sunderland	21.5	21.4	21.4	19.5	19.9	19.4	18.6	18.5	19.2	17.7
Gateshead	18.8	19.0	21.6	17.7	16.7	18.5	15.5	16.4	15.4	14.9
Newcastle-on-Tyne	20.6	19.5	21.9	19.9	19.2	19.4	16.8	17.1	15.9	16.0
CARDIFF	18.1	16.5	15.7	16.9	14.4	15.2	13.5	14.2	15.0	13.2

F. TABLE XXXII.—Analysis of Births and Deaths in the City of Cardiff, in Registration Sub-Districts, and in each Ward, during the year 1908.

LOCALITIES	*Population	Area in Acres	Persons per Acre	Total Births	Birth-rate	Total Deaths	Death-rate	Deaths under one Year per 1,000 Births registered	Principal Zymotic Diseases		Principal Zymotic Diseases.										Tubercle Mesenteric and other forms of Tuberculosis		Phthisis		Diseases of Respiratory Organs						
									Deaths	Death-rate	Small-pox		Measles		Scarlet Fever		Whooping Cough		Diphtheria		Typhoid Fever		Diarrhoea		Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	
											Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate	Deaths	Death-rate									
City of Cardiff ...	191,446	6,373	30	5,172	27.0	2,474	12.9	124.219	1.14	...	...	5	0.02	10	0.05	48	0.25	22	0.11	7	0.03	127	0.66	93	0.48	210	1.09	389	2.03	...	...
Roath Ward ...	16,820	...	...	434	25.8	180	10.7	115	17	1.01	...	...	...	1	0.06	7	0.41	1	0.06	...	...	8	0.47	8	0.47	12	0.71	32	1.90	...	...
Park Ward ...	26,680	...	...	544	20.4	237	8.9	97	17	0.63	...	...	...	...	...	4	0.15	3	0.11	...	...	10	0.37	5	0.18	22	0.82	32	1.20	...	...
Splott Ward ...	17,266	...	...	591	34.2	228	13.2	130	40	2.31	...	1	0.06	1	0.06	10	0.58	4	0.23	1	0.06	23	1.33	10	0.58	14	0.81	36	2.08	...	...
East Cardiff ...	60,766	481	126	1,569	25.8	645	10.6	114	74	1.22	...	1	0.01	2	0.03	21	0.34	8	0.13	1	0.01	41	0.67	23	0.38	48	0.79	100	1.64	...	...
Central Ward ...	11,486	...	...	236	20.5	147	12.8	135	12	1.04	...	...	...	...	...	4	0.35	1	0.09	...	...	7	0.61	7	0.61	14	1.22	25	2.18	...	...
South Ward ...	10,469	...	...	271	25.9	161	15.4	140	11	1.05	...	1	0.09	...	...	2	0.19	...	...	...	...	8	0.76	8	0.76	16	1.53	19	1.81	...	...
Cathays Ward ...	23,069	...	...	618	26.8	231	10.0	99	10	0.43	...	2	0.08	...	...	3	0.13	...	...	1	0.04	4	0.17	10	0.43	24	1.04	41	1.77	...	...
Adamsdown Ward ...	11,866	...	...	430	36.2	186	15.7	114	13	1.09	...	...	...	...	...	2	0.17	1	0.08	...	...	10	0.84	7	0.59	13	1.09	31	2.61	...	...
Central Cardiff ...	56,890	3,832	15	1,555	27.3	725	12.7	116	46	0.81	...	3	0.05	...	...	11	0.19	2	0.03	1	0.02	29	0.51	32	0.56	67	1.18	116	2.04	...	...
Riverside Ward ...	17,475	...	...	422	24.1	188	10.7	128	9	0.51	...	...	...	1	0.06	5	0.29	...	...	...	...	3	0.17	3	0.17	26	1.48	23	1.31	...	...
Canton Ward ...	24,829	...	...	714	28.7	255	10.3	127	25	1.01	...	...	...	...	...	5	0.20	2	0.08	...	...	18	0.72	7	0.27	19	0.76	47	1.89	...	...
Grange Ward ...	21,106	...	...	810	38.3	283	13.4	133	29	1.37	...	1	0.05	...	...	5	0.23	1	0.05	...	...	22	1.04	18	0.85	19	0.90	51	2.41	...	...
West Cardiff ...	63,410	2,060	30	1,946	30.7	726	11.4	130	63	0.99	...	1	0.01	1	0.01	15	0.24	3	0.05	...	...	43	0.68	28	0.44	64	1.01	121	1.91	...	...
Infectious Diseases Hospital ...	162	...	...	...	...	21	...	...	20	...	...	...	...	7	...	...	...	9	...	4	...	...	...	...	...	...	...	1	...	...	...
Union Workhouse ...	880	...	...	102	...	272	...	...	13	...	...	...	...	...	...	1	...	...	...	1	...	14	...	9	...	31	...	47	...	...	...
Cardiff Infirmary ...	175	...	...	...	...	81	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	4	...	...	...
Royal Hamadryad Seamen's Hospital	49	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

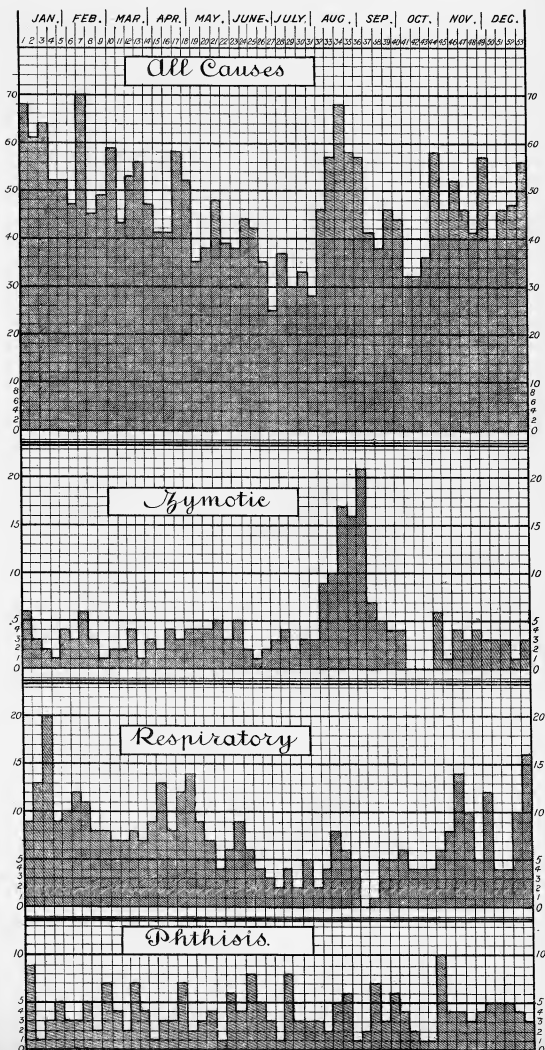
The deaths in the above Table are those of residents of Cardiff who died within the City.

The population of the whole City is that given by the Registrar General.

The population of the Registration Sub-Districts and Municipal Wards is estimated on the basis of the number of inhabited houses, June, 1908. The population of the Institutions is that given at the Census, 1901.

Chart A

SHOWING THE WEEKLY NUMBER OF DEATHS FROM ALL CAUSES, AND
FROM ZYMOTIC DISEASES, RESPIRATORY DISEASES AND PHTHISIS
DURING THE YEAR 1908.



INFANT MORTALITY.—The rate of infant mortality in Cardiff in the year 1908 calculated in the proportion of deaths under one year of age to 1,000 births registered was as follows as compared with that in England and Wales :—

	Death under 1 year per 1,000 births.
England and Wales	121
76 great towns ...	128
142 smaller towns ...	124
England and Wales less 218 towns	110
CARDIFF ...	124

TABLE XXXIV.

From the following Table it will be seen that the rate of infant mortality in Cardiff compares favourably with that in the large towns :—

	LARGE TOWNS.	CARDIFF.
YEAR	Deaths under 1 year per 1,000 births.	Deaths under 1 year per 1,000 births.
1881—1890	162	165
1891—1900	172	161
1901	168	148
1902	145	145
1903	144	122
1904	160	144
1905	160	118
1906	145	134
1907	127	131
1908	128	124

The following Table shows the rate of infant mortality in England and Wales since 1876.

TABLE XXXV.

YEARS	DEATHS UNDER 1 YEAR PER 1,000 BIRTHS.
1876—1880	144
1881—1885	138
1886—1890	145
1891—1895	150
1896—1900	156
1901	151
1902	133
1903	132
1904	146
1905	146
1906	133
1907	118
1908	121

From the foregoing Tables it will be seen that the rate of infant mortality is practically stationary in England and Wales, and that an actual increase is recorded in the large towns during the more recent decennium. In Cardiff since 1881-1890 the rate has declined.

The following Table shows the rate of infant mortality in the several municipal wards since the year 1899, and indicates the wards by underline in which the mortality has been the highest in each year.

TABLE XXXVI.

Infant mortality in the several Municipal Wards :—

	Deaths under one year per 1,000 births.									
	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908
Cardiff	183	140	148	145	122	144	118	134	131	124
Roath Ward	199	183	128	146	133	123	104	114	121	115
Park "	171	102	129	129	93	120	70	98	95	97
Splott "	162	120	147	153	129	163	144	146	135	130
Central "	161	<u>211</u>	215	155	114	164	129	211	180	135
South "	233	<u>156</u>	181	166	190	<u>173</u>	<u>135</u>	<u>159</u>	<u>176</u>	<u>140</u>
Cathays "	180	134	125	<u>120</u>	<u>104</u>	<u>110</u>	95	99	107	99
Adamsdown Ward	199	137	171	153	146	142	<u>149</u>	153	134	114
Riverside "	<u>384</u>	132	<u>234</u>	112	109	135	<u>112</u>	110	109	128
Canton "	<u>122</u>	116	133	143	101	134	105	118	102	127
Grangetown "	195	159	133	161	122	170	134	151	159	133

The chief causes of deaths amongst infants under one year of age in Cardiff during the year 1908 are given in the following Table :—

TABLE XXXVII.

CAUSES OF DEATH.	DEATHS UNDER ONE YEAR.
Premature Birth	113
Diarrhœa	105
Pneumonia	46
Enteritis	36
Bronchitis	30
Tuberculosis	29
Whooping Cough	25

As usual diarrhœa figures prominently in connection with infantile mortality. Most of the deaths of infants from this cause take place in the third quarter of the year, with the result that the rate of mortality in this quarter almost invariably exceeds that of the other quarters in the year. A notable exception to this rule was in the year 1907, when the rates in the first and fourth quarters exceeded that of the third quarter. Generally, therefore, the fatality from summer diarrhœa is one of the most important factors in the annual rate of infant mortality, and the fluctuations in this rate depend largely upon the degree of this fatality, and therefore upon the variations of summer temperature and rainfall. High rates of infant mortality being associated with hot and dry summers and low rates with summers which are comparatively cool and wet. It is generally considered that

the summer diarrhoea of infants is influenced more particularly by the temperature of the earth. In the following Table, therefore, the mean reading of the 4 feet earth thermometer at the Climatological Station, Penylan, are given, together with the rainfall and the diarrhoea mortality during the third quarters of several years.

TABLE XXXVIII.

YEAR.	Diarrhoea Death-rate.	Earth Temperature 4 ft. mean. °F.	Rainfall ins.
1892	2.3	57.3	12.4
1893	2.5	58.5	8.9
1894	0.5	57.6	10.9
1895	2.5	63.0	9.9
1896	2.4	59.4	11.3
1897	2.6	62.1	14.3
1898	2.6	60.9	5.8
1899	3.2	62.7	5.3
1900	1.2	58.2	6.0
1901	1.4	57.3	11.1
1902	0.8	58.4	9.7
1903	1.2	58.1	14.7
1904	2.3	58.7	10.7
1905	0.8	59.1	5.3
1906	2.3	58.7	4.5
1907	0.5	57.8	7.2
1908	1.8	58.3	12.5

The deaths from diarrhoea at all ages during the year 1908, and including those from epidemic enteritis, numbered 127, being equivalent to an annual death-rate of 0.66 per 1,000 persons living, as compared with 0.35, the rate in 1907, and with 0.59 per 1,000, the average death-rate in the 10 years 1898-1907.

The mortality from diarrhoea throughout the country in the year 1908, was as follows :—

	Death-rate.
England and Wales	0.50 per 1,000
76 Great Towns	0.65 "
142 Smaller Towns	0.52 "
CARDIFF	0.66 "

The distribution of fatal diarrhoea in Cardiff, according to the season of the year, and the various age periods, was as follows :—

TABLE XXXIX.

1907.	Under 1 year.	1-5 years.	5-15 years.	15-25 years.	25-65 years.	65 years and upwards.	TOTALS
First Quarter	6	3	—	—	1	—	10
Second	11	3	—	—	1	—	15
Third	77	8	—	—	1	—	86
Fourth	11	3	—	—	1	1	16
Totals	105	17	—	—	4	1	127

A reference to Table in V. the Appendix will show that the first few weeks is the most critical period of infant life. Of the 644 deaths under one year of age, 217, or 32 per cent., were under one month old. Of the 217 under one month, 135, or 62 per cent., were in their first week of life, the deaths of the majority of these (109) being attributed to premature birth, atrophy, or congenital defects. It would appear, therefore, that a considerable portion of the infantile mortality is due to ante-natal conditions, and that in any comprehensive scheme for reducing the rate of infant mortality, the health of the mother during pregnancy must be taken into consideration.

It may be of interest to point out that, although the rate of infantile mortality, as calculated in the proportion of deaths under one year of age per 1,000 births, has sensibly declined in Cardiff during past years, this decline is confined to those which occurred after the second month of life; before this period there is an actual increase in the rate of mortality. This is clear from the following table giving the deaths from three causes, of infants under two months of age, and the proportion of deaths from these causes alone per 1,000 births registered.

TABLE XL.

Deaths of Infants under 2 months.

		Premature births.		Congenital Defects.		Atrophy and Debility.		Total.	Proportion of deaths per 1,000 births.
1905	...	69	...	14	...	52	...	135	26
1906	...	82	...	14	...	56	...	152	30
1907	...	92	...	9	...	55	...	156	32
1908	...	108	...	17	...	53	...	178	34

These deaths would therefore seem to be due to a group of conditions which may be described as *immaturity*. It is also of importance to note that a very large proportion of the deaths under two months of age occur during the first week of life. For instance, during the four years 1905-1908, 721 deaths from the causes enumerated in the table occurred amongst infants under 2 months old, and 350, or 48.5 per cent. of these deaths were in the first week of life. In considering these figures, it is necessary, however, to point out that during recent years both the certification of causes of death and the registration of births have been more accurate, and that, as Dr. Tatham and others have pointed out, it is possible that the increase in the ratio of deaths from *immaturity* may be more apparent than real, and that owing to this increased accuracy of certification and registration the general rate of infant mortality has been apparently increased during recent years, and especially since the adoption and systematic administration of the Midwives Act, 1902, and the Notification of Births Act, 1907.

In dealing with these deaths due to *immaturity*, the period of two months has been taken for convenience, since an interval of six weeks is still legally permissible between births and their registration.

The following Table indicates the difference between the mortality of legitimate and that of illegitimate infants :—

TABLE XLI.

Year.	Births.		Percentage of illegitimate to total births	Deaths under 1 year.		Proportion of deaths under one year per 1,000 births.		
	Total	Illegitimate		Total	Illegitimate	Total	Legitimate	Illegitimate
1905	5,140	164	3.2	607	50	118	112	305
1906	5,001	172	3.4	675	59	134	127	343
1907	4,865	146	3.0	639	51	131	124	349
1908	5,172	193	3.7	644	63	124	116	326

It is evident from the table that the mortality among the illegitimate is far greater than among the legitimate, in fact the number of deaths of illegitimate infants per 1,000 illegitimate births is more than double that of the legitimate infants per 1,000 legitimate births. This high rate of mortality must be largely attributed to maternal neglect and to the unfavourable social position of the illegitimate. It is a significant fact that still births are much more numerous amongst the illegitimate than among the legitimate, and that inquests held on illegitimate children under one year of age amount to about 30 per cent. of all the inquests held on infants, although such children form less than 4 per cent. of the total number of births.

The Children Act, 1908, has been framed with the object of protecting these unfortunate infants. This Act provides that "where a person undertakes for reward the nursing and maintenance of one or more infants under the age of seven years apart from their parents, or having no parents, he shall within 48 hours from the reception of any such infant, give notice in writing thereof to the Local Authority, stating name, sex and date, and place of birth, the name of the person receiving the infant, the dwelling within which the infant is being kept and the name and address of the person from whom the infant has been received." The Act imposes upon the Local Authority the duty of appointing "Infant Protection Visitors," whose work will consist in visiting from time to time any infants concerning whom notice has been received by the Local Authority, in order to satisfy themselves as to the proper nursing and maintenance of the infants, or to give any necessary advice or direction as to their nursing and maintenance. The Local Authority referred to in this part of the Act is the Board of Guardians of the Poor Law Unions. It is probable that the Act, where it is efficiently administered will be the means of improving the condition of infants kept for profit in the homes of the poor.

An important cause of this mortality is improper feeding, resulting in fatal diarrhœa, enteritis, and other disorders of the digestive system. The mortality from this cause falling more particularly upon those who have passed the first month of their life. The deaths from diarrhœa and epidemic enteritis at all ages, during the year 1908 numbered 127, and were equivalent to an annual death-rate of 0.66 per 1,000 persons living; of these 105 were amongst children under one year of age, 77 of whom died during the summer or third quarter of the year.

The following Table shows the age periods of the 105 infants under 1 year of age whose deaths were attributed to diarrhoea :—

TABLE XLII.

Deaths from Diarrhoea.	Under 1 month	1—2 months	2—3 months	3—4 months	4—5 months	5—6 months	6—7 months	7—8 months	8—9 months	9—10 months	10—11 months	11—12 months	Total under 1 year
	4	15	6	9	11	12	14	8	9	10	2	5	105

The local distribution of infantile mortality is of interest. Table XXXVI indicates that the variation in the rate of mortality in the several districts is not a mere matter of accident, but is due to causes operating consistently during continuous periods ; the South Ward shews the highest rate during four out of the ten years given in the Table ; the Central during three, Riverside during two years, and Adamsdown during one year. The lowest rates are in the outlying and newer districts in the town. Obviously, social conditions, conditions of housing, density of population and cleanliness are important factors in this variation. Poverty, overcrowding, ignorance, and neglect are to be found in excess in those parts of the above named wards, which contain the older and more unsatisfactory streets, small courts and houses.

The difficulties of storing the food intended for infants, especially cows milk are of course greater in these districts. It is frequently subject to all sorts of household contamination, stored in dirty cupboards or hot kitchens, and administered in a state quite unsuitable to the digestive powers of infants. Moreover, the milk supplied to the inhabitants of these poorer districts is usually derived from milk vendors in a small way of business, whose methods of storage and distribution frequently leave much to be desired in the way of cleanliness. Even if the milk supplied in this way were clean and pure, which is seldom the case, the ignorance displayed by many of the mothers upon the subject of infant feeding is in itself sufficient to account for much of the illness and mortality in these localities, as few of them thoroughly appreciate the importance of protecting this or other food from contamination. The advantages of a pure milk supply in the reduction of infantile mortality can hardly be over estimated, and your Health Committee have persistently directed their attention to this matter, and have practically adopted all the recommendations made by the Medical Officer of Health in a special report upon infantile mortality presented in January, 1907. These were to the following effect :—

- (1)—The education of mothers with respect to the feeding and rearing of infants, by means of domiciliary visits by Lady Health Visitors.
- (2)—The better control and supervision of milk supplied to infants artificially fed.
- (3)—Special attention to the cleansing of streets and flushing of street gullies, reducing as far as possible the nuisance caused by dust in roads and streets.
- (4)—The insertion of clauses in a Local Act of Parliament giving more complete control of the milk supply.

In connection with No. 3, too much importance cannot be attached to the cleansing of streets, the flushing of sewers and street gullies, and to the reduction of the amount of dust caused by electric cars, motor cars, and other vehicles, during the hot and dry weather.

The beneficial effects of rain are seen in the reduction of the mortality figures in wet and cool summers. It is advisable, therefore, to imitate nature in this direction, and to increase as far as permissible the amount of water for street watering, &c., paying special attention to those districts in which the rate of infant mortality is continuously above the average.

Notification of Births Act, 1907.—This Act was adopted by the Local Authority during the year 1908, and came into force on the 13th April of that year.

It provides for the notification to the Medical Officer of Health of every birth within the City of Cardiff by the father, if residing in the house where the birth takes place, and by any person in attendance upon the mother at the time of, or within six hours after, the birth. Notice under this provision must be given to the Medical Officer of Health within thirty six hours after the birth. Before the Act came into force, a system of voluntary notification of births from certified midwives had been in operation.

The following Table gives the number of births notified in each quarter of the year.

TABLE XLIII.

NOTIFICATION OF BIRTHS DURING THE YEAR 1908.

First Quarter (voluntary notification)	...	...	...	...	912
Second Quarter (under Act of 1907)	...	...	...	...	1,303
Third Quarter	..	..	...	...	1,064
Fourth Quarter	..	..	...	...	1,181
					<hr/>
Total	...	...	...	...	4,460

The number of births registered within the City in the year under consideration was 5,172. It will be seen, therefore, that 86 per cent. of these were notified under the Act and under the voluntary system; 3,891, or 87 per cent. of the births of which notice was received were notified to the Medical Officer of Health by midwives. The number notified includes 163 still births. It would appear, therefore, that in about 25 per cent. of the births registered during the year a medical practitioner was in attendance upon the mother.

The Health Visitors make a daily list of births in selected districts, and visit each house in these districts in which a birth has taken place. The visit is paid as soon after the event as possible, and in a large proportion of cases the houses are revisited from time to time during the first year of the child's life. Altogether 2,116 revisits were paid, and generally at the request of the mother, to whom printed and verbal instructions were given relating to infant feeding and to the health of the child. The reception met with by the Health Visitors in the houses of the poor has been most encouraging, and it is in itself evidence of the tact and ability displayed by these ladies in the discharge of their difficult duties. There is every reason to believe that the continuance of the methods now being pursued will result in a diminution of the infant mortality in the district.

The following Table contains information relating to the nature of the food of 3,291 infants visited by the Health Visitors within one month of birth.

TABLE XLIV.

Breast fed	...	...	...	...	2,835
Breast fed and other food	...	...	...	...	252
Condensed milk	...	...	...	...	43
Cows milk	...	...	...	...	146
Cows milk and other food	...	...	...	...	15
					<hr/>
Total	...	...	...	...	3,291

Midwives Act, 1902.—This Act came into operation on the 1st April, 1903, when the City Council was constituted the Local Supervising Authority. Under the provisions of Section 8 of the Act, the Local Supervising Authority delegated to the Health and Port Sanitary Committee all the powers and duties conferred or imposed upon them, and appointed the Medical Officer of Health Executive Officer.

The Act aims at the better education and supervision of midwives by the establishment of a system of certification and enrolment of women qualified to act in that capacity. Up to the 1st April, 1905, all women who were in *bona-fide* practice as midwives at least one year prior to the 31st July, 1902, were entitled upon application to be certificated and enrolled. After the former date certification can only be obtained after a course of study and by passing an examination in accordance with the rules of the Central Midwives Board.

A course of training has been established at the University College of South Wales and Monmouthshire in Cardiff for those who intend to present themselves for the Board's examination. Dr. E. J. Maclean, the Lecturer on midwifery at the College, who gives the instruction, informs me that during the year ending 31st December, 1903, 75 pupil midwives attended the classes and that 45 of these women resided in Cardiff. The Local Supervising Authorities of Cardiff and of the Administrative County of Glamorgan contribute towards the expenses of this course, and have the privilege of nominating a certain number of women each term for free studentship in midwifery. The Committee of the Queen's Nursing Institute have also established a Maternity Department, and take pupils for the practical training of midwives. Both the theoretical and practical courses are recognized by the Central Midwives Board as qualifying for admission to their examination. During the year Dr. Elizabeth Elder, in the department of the Medical Officer of Health, has also given a course of lectures and demonstrations to practising midwives in the district. The course was well attended and will doubtless be repeated from time to time.

Some difficulty occasionally arises in securing medical aid for poor women attended by midwives in their confinement. The midwife is required (under the rules of the Central Midwives Board) to advise the responsible person to send for medical help in any abnormality, or illness of the woman, occurring during pregnancy, labour or lying in, and in the case of the child in any case of abnormality or complication. She is also required to fill in a printed form supplied to her for the purpose, and to hand this to the husband or nearest relative in order that this request for medical aid may be immediately forwarded to the medical practitioner.

A circular was recently issued by the Local Government Board calling the attention of the Board of Guardians to the powers which they possess under the Poor Law Amendment Act, 1848, of paying for medical assistance rendered in a case of midwifery, without an order from the relieving officer, and of subsequently recovering the fee if the patient is found in a position to pay. The Guardians have decided to consider each case of application for payment on its merits. The Local Supervising Authority has also taken this matter into consideration and passed a resolution to the following effect:—"That in the following cases of urgency, viz.:—flooding, convulsions, and rupture of the uterus, in which medical practitioners are called in by certified midwives, a fee not exceeding one guinea be paid to each such medical practitioner called in, in the event of his failing to obtain payment of his fee from the patient or from the Poor Law authorities."

No application for payment under the terms of this resolution has been made during the year.

Table XLVII gives the number of cases in which midwives sent notice to the Local Supervising Authority in accordance with Rule 21, of having advised that a medical practitioner should be sent for.

The supervision of the practice of midwives has been carried out efficiently by Mrs. L. Huntley, the Inspector appointed by the Local Supervising Authority, who is a certified midwife, holding the licence of the Obstetrical Society.

During the year one midwife was struck off the roll (E. S., No. 14979). A *prima facie* case of misconduct was established, after investigation by the Local Supervising Authority, and the particulars were reported to the Central Midwives Board, who removed the woman's name from the roll.

One midwife died, and eight were suspended for various short periods in order to prevent the spread of infectious disease.

The following Tables give information supplied by the Inspector of Midwives as the result of her work of inspection and supervision.

TABLE XLV.

Number of Midwives on the Roll, 1908. ... 117

CERTIFIED MIDWIVES AND THEIR QUALIFICATIONS:

<i>Bona fide</i> ...	83
Obstetrical Society of London ...	12
Rotunda Hospital ...	2
Examination Central Midwives Board ...	20
Total ...	117

TABLE XLVI.

Certified Midwives.	Case Books.	Record Books.	Bags.	Washable Dresses	Appliances (Complete)	Appliances (Part)
77	77	77	77	77	77	—
25	25	25	25	25	—	25
6	6	6	—	6	—	6
4	—	—	—	4	—	4
5	—	—	—	—	—	—
117	108	108	112	102	77	35

TABLE XLVII.

REASONS FOR SENDING FOR MEDICAL HELP.

(a) *Condition of Mother—*

Abortion	...	...	...	...	...	4
Delay in Labour	...	...	...	...	...	60
Mal-presentation or not felt	...	...	...	...	...	33
Ante Partum Hæmorrhage	...	...	...	...	...	9
Post Partum	„	...	...	...	...	6
Retained Placenta	...	...	...	...	...	16
Rupture of Perineum	...	...	...	...	...	26
Rise of Temperature	...	...	...	...	...	13
Small Pelvis	...	...	...	...	...	15
Growth on Cervix	...	...	...	...	...	2
Placenta Prævia	...	...	...	...	...	4
Eclampsia	...	...	...	...	...	2
Ill health of mother	...	...	...	...	...	10
Total	...	...	...	...	...	200

(b) *Condition of Child—*

Feebleness of Child	...	...	...	...	...	25
Deformity	„	„	...	...	...	3
Death	„	„	...	...	...	2
Stillbirths	...	...	...	...	...	7
Total	...	...	...	...	...	37

TABLE XLVIII.

Still births notified by Midwives	...	...	...	...	163
Death of Midwife	...	...	...	...	1
Struck off the Roll	...	...	...	...	1
Suspended from practice	...	...	...	...	8
Cases of Puerperal Fever attended by Midwives	...	...	...	...	10

The following Table gives the number of deaths from puerperal fever and from other diseases and accidents of child-birth in each year since 1902 and the death-rate from these causes per 1,000 births registered.

TABLE XLIX.

	1903	1904	1905	1906	1907	1908
Deaths from Puerperal Fever	7	3	5	2	9	4
Other diseases, accidents, &c.	16	12	11	10	6	6
No. of Births	5,250	5,208	5,140	5,001	4,865	5,172
Inclusive death-rate per 1,000 births	4.3	2.8	3.1	2.3	3.0	1.9

TABLE L.

Giving particulars relating to puerperal fever in wards and registration sub-districts.

WARDS.	Population.	No. of Births.	Birth rate.	Puerperal Fever.	
				Notified Cases.	Attack rate per 1,000 births
East Cardiff.					
{ Roath Ward	16,820	434	25.8	8	5.0
{ Park „	26,680	544	20.4		
{ Splott „	17,266	591	34.2		
Central Cardiff.					
{ Central „	11,486	236	20.5	6	3.8
{ South „	10,469	271	25.9		
{ Cathays „	23,069	618	26.8		
{ Adamsdown Ward	11,866	430	36.2		
West Cardiff.					
{ Riverside „	11,475	422	24.1	1	0.5
{ Canton „	24,829	714	28.7		
{ Grangetown „	21,106	810	38.3		

INFECTIOUS DISEASES.—The 2,538 deaths from all causes included 219 from the principal infectious or epidemic diseases. This number was equal to an inclusive death-rate from these diseases of 1.14 per 1,000 persons living, as compared with 1.91 the rate in 1907, and with 1.92, the average rate in the ten years 1898–1907.

The death-rate from these diseases in England and Wales in 1908 was as follows :—

	Death-rate per 1,000.
England and Wales	1.29
76 Great Towns	1.59
142 Smaller Towns	1.26
England and Wales less the 218 towns	0.99
CARDIFF	1.14

The mortality from infectious diseases in Cardiff during each quarter of the year was distributed as follows :—

TABLE LI.

	First Quarter	Second Quarter.	Third Quarter	Fourth Quarter.
Measles	5	—	—	—
Whooping Cough	10	18	13	7
Diphtheria	7	2	3	10
Scarlet Fever	4	4	1	1
Enteric Fever	2	3	1	1
Diarrhoea	10	15	86	16

In the Registration Sub-Districts the mortality during 1908 from these diseases was as follows :—

	Death rate per 1,000
East Cardiff	1.22
Central „	0.81
West „	0.99

The following Table gives the year's mortality from the principle infectious diseases compared with the average mortality from these diseases during past decennial periods :—

TABLE LII.

Death-rate per 1,000 persons living :—

	1875—80	1881—90	1891—1900	1898—1907	1908
Small Pox	0.01	0.03	0.01	0.00	0.00
Measles	0.46	0.66	0.42	0.44	0.02
Scarlet Fever	1.00	0.41	0.17	0.09	0.05
Diphtheria	0.11	0.20	0.47	0.32	0.11
Whooping Cough	0.55	0.52	0.48	0.37	0.25
Enteric Fever	0.37	0.33	0.14	0.07	0.03
Diarrhœa	0.78	0.93	0.91	0.59	0.66

TABLE LIII.

Death-rate per 1,000, 1901—1908.

Years	1901	1902	1903	1904	1905	1906	1907	1908
Small Pox	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00
Measles	0.01	1.08	0.15	0.36	0.44	0.01	0.94	0.02
Scarlet Fever	0.17	0.21	0.18	0.14	0.02	0.01	0.11	0.05
Diphtheria	0.47	0.52	0.20	0.17	0.12	0.07	0.12	0.11
Whooping Cough	0.52	0.56	0.15	0.34	0.21	0.35	0.30	0.25
Enteric Fever	0.06	0.05	0.08	0.05	0.04	0.07	0.07	0.03
Diarrhœa	0.45	0.32	0.47	0.73	0.27	0.82	0.35	0.66

The following Table shows the number of cases of infectious disease notified in the Cardiff Urban Sanitary District since the adoption of the Infectious Disease (Notification) Act, 1889 :—

TABLE LIV.

Year.	Small-Pox.	Diphtheria (including Membranous Group)	Scarlet Fever.	Euteric Fever.	Typhus Fever.	Erysipelas.	Puerperal Fever.	Continued Fever.	Totals.
1890	—	72	335	150	—	45	4	2	608
1891	9	70	685	130	—	52	10	—	956
1892	5	164	1,851	118	—	95	12	3	2,248
1893	4	479	816	103	41	152	24	2	1,621
1894	10	343	577	62	1	135	19	3	1,150
1895	1	248	484	79	—	132	17	5	966
1896	45	306	874	74	1	134	21	7	1,462
1897	7	516	758	117	—	163	12	7	1,580
1898	—	960	332	80	—	133	18	6	1,529
1899	—	640	184	94	—	176	13	8	1,115
1900	4	714	383	95	4	106	15	5	1,326
1901	8	734	1,362	73	—	152	16	3	2,348
1902	2	701	1,433	69	—	169	13	7	2,394
1903	65	438	963	100	6	145	20	5	1,742
1904	11	406	658	40	—	112	12	2	1,241
1905	24	327	362	39	—	133	14	3	902
1906	2	333	776	77	—	117	17	1	1,323
1907	16	304	950	62	—	147	16	—	1,495
1908	—	291	475	55	—	167	15	1	1,004

SMALL POX.—This disease has been entirely absent from the town during the year 1908.

The following Table shows the mortality from small pox since 1875 :—

DEATH-RATE PER 1,000 FROM SMALL POX.

1875—80	1881—90	1891—1900	1898—1907	1908
0·01	0·03	0·01	0·00	0·00

I am indebted to Mr. Matthews, the Vaccination Officer, for the following return of vaccinations within the City during the year 1908 :—

Successfully Vaccinated.	Insus- ceptible.	Postponed.	Certificates of Exemption	Died Un- vaccinated.	Left the Town.	Unaccounted for.
3,183	20	87	429	466	329	565

From the above Table it would appear that the number of children successfully vaccinated was in the proportion of 61 per cent. of the births registered. It is significant in connection with the alteration of the conditions for obtaining exemption on the grounds of conscientious objection, that 429 such exemptions were granted in 1908 as compared with 89 in 1907.

MEASLES.—Five deaths from measles were registered, being equivalent to an annual death-rate of 0·02 per 1,000 persons living. This disease occurred in an epidemic form in the year 1907, when 176 deaths occurred, giving a death-rate of 0·94. As measles, when it occurs in this form usually spreads with great rapidity and attacks most of the young children in the district who have not previously had the disease, extensive outbreaks usually occur in large districts about every two years when the population has been increased and there is a fresh accumulation during the interval of susceptible children, the chief mortality from measles falling upon the second year of life and being almost entirely confined to those under five years of age.

SCARLET FEVER.—Ten deaths from scarlet fever were registered during the year, being equal to an annual death-rate of 0·05 per 1,000 persons living, as compared with 0·11, the rate in 1907, and with 0·09, the average death-rate during the ten years 1898–1907.

The mortality from scarlet fever throughout the country was as follows :—

	Death rate per 1,000					
England and Wales	0·08
76 Great Towns	0·10
142 Smaller Towns	0·06
CARDIFF	0·05

The number of cases of scarlet fever notified during the year amounted to 475, distributed as follows :—

	First Quarter	Second Quarter.	Third Quarter.	Fourth Quarter.	Total.
East Cardiff	... 43	... 43	... 49	... 47	... 182
Central „	... 24	... 24	... 30	... 18	... 96
West „	... 50	... 33	... 54	... 60	... 197
Totals	... 117	... 100	... 133	... 125	... 475

Of the 475 cases of scarlet fever notified, 370, or 78 per cent., were removed to the City Isolation Hospital.

The fatality, or proportion of deaths from scarlet fever to cases of the disease notified, amounted to 2·1 per cent. The disease was generally of a mild type.

TABLE LV.

SCARLET FEVER.

Year	Population.	No. of Cases Notified.	Attack rate per 1,000	No. of Deaths.	Death rate per 1,000	Percentage Removed to Hospital.	Mortality per cent. of Cases Notified.
1890	117,012	335	2.86	19	0.16	—	5.6
1891	130,283	685	5.25	35	0.27	—	5.0
1892	132,895	1,851	13.17	87	0.65	13	4.7
1893	136,168	816	6.00	39	0.28	22	4.7
1894	139,519	577	4.13	8	0.05	31	1.3
1895	142,958	484	3.38	8	0.05	43	1.6
1896	146,479	874	5.96	28	0.19	48	3.2
1897	150,087	758	5.05	17	0.11	50	2.2
1898	153,783	332	2.15	8	0.05	56	2.4
1899	157,414	184	1.16	3	0.01	66	1.6
1900	161,452	383	2.37	11	0.06	65	2.8
1901	165,308	1,362	8.23	29	0.17	47	2.1
1902	168,909	1,433	8.42	36	0.21	48	2.1
1903	172,598	963	5.57	32	0.18	63	3.7
1904	176,313	658	3.73	25	0.14	72	3.3
1905	180,054	362	2.00	4	0.02	75	1.1
1906	183,823	776	4.22	3	0.01	74	0.4
1907	187,620	950	5.06	21	0.11	72	2.2
1908	191,446	475	2.42	10	0.05	78	2.1

SCARLET FEVER AND PUBLIC ELEMENTARY SCHOOLS.

The incidence of this disease upon the several schools in the district is shown in the Report to the Education Authority for the year 1908. From this it will be seen that 291 of the 475 cases notified were amongst scholars attending school. The amount of scarlet fever throughout the district was, this year, considerably below the average, and the attack rate (2.42 per 1,000 persons living) was, with the exception of 1905, the lowest since the year 1901.

The connection between scarlet fever prevalence and school attendance is shown in Chart C, giving the number of notifications of this disease in each month during the years 1901-1908. From this it will be seen that the special feature associated with the prevalence of this disease is the fall in the number of notifications in each year during the summer holidays, *i.e.*, the month of August, to be followed usually by a rise on the reassembling of the schools in September.

There was no evidence of milk infection in connection with any of the cases of scarlet fever reported during the year.

The age-periods of the persons notified to be suffering from scarlet fever were as follows:—

All ages	...	...	...	...	475
0—1 years	...	...	...	...	6
1—5	...	...	...	...	141
5—15	...	...	...	...	285
15—25	...	...	...	...	28
25—65	...	...	...	...	15
65 years and upwards	...	...	...	...	—

DIPHTHERIA AND MEMBRANOUS CROUP.—The number of deaths registered from these diseases amounted to 22, and were equivalent to an annual death-rate of 0·11 per 1,000, as compared with 0·12, the rate in 1907, and with 0·32, the average rate in the ten years 1898—1907.

The mortality from diphtheria throughout the country in 1908 was as follows :—

	Death rate per 1,000.			
England and Wales	0·15
76 Great Towns...	0·16
142 Smaller Towns	0·15
CARDIFF	0·11

The number of cases of diphtheria notified in Cardiff during 1907 amounted to 291, as compared with 304 in 1907. The fatality, or proportion of deaths to cases notified, during the year was 7·5 per cent., and the number of cases removed to the City Isolation Hospital was 182, or 62·5 per cent. of the cases notified.

The number of notifications and deaths in each quarter of the year in the several Registration Sub-districts was as follows :—

	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.	
	Notifications.	Deaths.	Notifications.	Deaths.	Notifications.	Deaths.	Notifications.	Deaths.
East Cardiff	14	2	21	1	15	1	45	4
Central „	17	1	15	0	14	0	15	1
West „	34	2	35	1	17	0	42	0
Totals	65	5	71	2	46	1	102	5

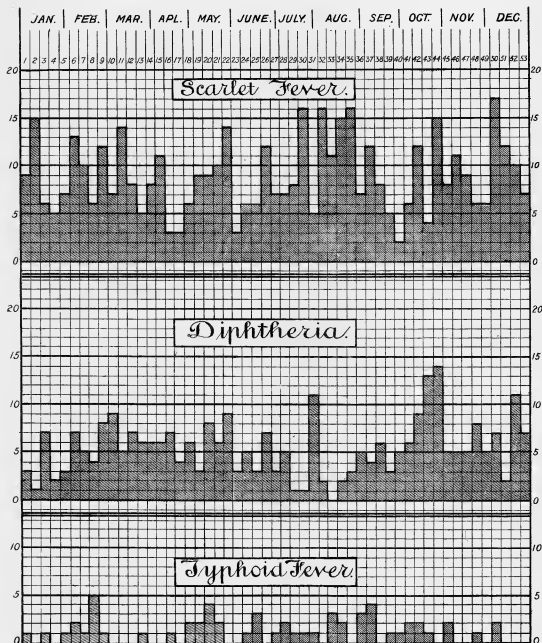
TABLE LVI.

DIPHTHERIA AND MEMBRANOUS CROUP.

Year.	Population.	No. of Cases Notified.	Attack rate per 1,000.	No. of Deaths.	Death rate per 1,000.	Percentage Removed to Hospital.	Mortality per cent. of Cases Notified.
1890	117,012	72	0·61	15	0·12	—	20·8
1891	130,283	70	0·53	16	0·12	—	22·8
1892	132,895	164	1·23	36	0·27	—	21·9
1893	136,168	479	3·51	93	0·68	—	19·4
1894	139,519	343	2·45	59	0·42	—	17·2
1895	142,958	248	1·73	46	0·32	3	18·5
1896	146,479	306	2·08	55	0·37	3	17·9
1897	150,087	516	3·43	90	0·59	15	17·4
1898	153,783	960	6·24	129	0·83	21	13·4
1899	157,414	640	4·06	61	0·38	46	9·5
1900	161,452	714	4·42	81	0·50	53	11·3
1901	165,308	734	4·44	78	0·47	47	10·6
1902	168,909	701	4·15	88	0·52	46	12·5
1903	172,598	438	2·53	36	0·20	51	8·2
1904	176,313	406	2·30	31	0·17	47	7·6
1905	180,054	327	1·81	23	0·12	56	7·0
1906	183,823	333	1·81	13	0·07	56	3·9
1907	187,620	304	1·62	23	0·12	59	7·6
1908	191,446	291	1·52	22	0·11	62	7·5

Chart B

SHOWING THE WEEKLY NOTIFICATIONS OF SCARLET FEVER,
DIPHTHERIA, AND TYPHOID FEVER IN CARDIFF DURING THE
YEAR 1908.



The fatality from diphtheria falls chiefly upon young children. The number of notifications and the rate of fatality at various age periods in Cardiff during the year is given below :—

Age period.	Cases Notified.	Deaths	Proportion of Deaths to Cases Notified.
0—1 year	5	—	—
1—5 years	92	19	20.6 per cent.
5—15 „	136	3	2.2 „
15—25 „	29	—	—
25—65 „	28	—	—
65 years and upwards	1	—	—

From Table LVI it will be seen that diphtheria has greatly diminished in prevalence during the past six years, and that the attack rate, or proportion of notifications per 1,000 persons living, was, in 1908, the lowest recorded since the year 1893.

Diphtheria prevailed extensively in South Wales during the years 1897—1902, reaching the highest point as regards mortality and notifications in 1898. Since that date a decline has taken place, and in a very marked manner since the year 1902.

The chief incidence of the disease falls upon children at school ages. The aggregation of large numbers of young children in the elementary schools, at ages when they are particularly susceptible to the infection, is undoubtedly responsible to some extent for the spread of the disease at these ages. Chart C shows a decline in the number of notifications during the summer holidays, although the fall is not so marked as in the case of scarlet fever.

At the present time the method for preventing the spread of diphtheria comprises the isolation, in hospital if possible, of the infected person, and the subsequent disinfection of the premises and of infected articles. Children who have been in contact with infected persons are kept from school until the house in which they reside is declared free from infection. The certificate allowing the child to return to school is given by the Medical Officer of Health, but frequently it is of necessity based upon the certificate of, or information received from, the medical man attending the case.

It would add materially to the value of these certificates, if they were in all cases based upon a bacteriological examination, and were not given until a negative result were recorded by the bacteriologist. The bacteriological examination should include as a matter of routine practice that of 'swabs' from the throats of all persons who have been in contact with a case of diphtheria, and who might be suspected of harbouring the bacillus, in order that those in whose throats bacilli are found, should be isolated until they are found on examination to be free from infection. It is to be regretted that greater advantage is not taken by medical practitioners of the facilities offered by the Public Health Laboratory for bacteriological examinations of 'swabs' from the throats in suspected cases of diphtheria, but at present there are difficulties in the way of a very extensive use of this means of diagnosis, and it is doubtful if under the existing conditions of laboratory work it would be possible to undertake the extra work which would be entailed by the examination of all such cases. This procedure would be possible only by providing for the necessary bacteriological examinations to be made free of charge to medical practitioners; the cost in such cases being borne by the Sanitary Authority in the interests of the public health.

ENTERIC FEVER.—Seven deaths were registered from enteric fever during the year, equivalent to an annual death-rate of 0.03 per 1,000 persons living, as compared with 0.07, the rate in 1907. The average death-rate from enteric fever in the 10 years 1898—1907 was 0.07 per 1,000,

The mortality from this disease throughout the country was as follows :—

	Death-rate per 1,000.
England and Wales	0.07
76 Great Towns	0.08
142 Smaller Towns	0.08
CARDIFF	0.03

The number of cases of enteric fever notified in Cardiff during 1908 was 55; of these 42, or 76·3 per cent., were removed to the City Isolation Hospital.

The number of cases of enteric fever notified since the Infectious Diseases (Notification) Act came into force is shown in the following Table, which shows also the attack rate, or proportion of cases notified per 1,000 persons living, the death-rate per 1,000, and the percentage of deaths to cases notified :

TABLE LVII.
ENTERIC FEVER.

Year.	Population.	No. of Cases Notified.	Attack rate per 1,000.	No. of Deaths.	Death rate per 1,000.	Percentage removed to Hospital.	Mortality per cent. of cases Notified.
1890	117,012	150	1·28	23	0·19	—	15·3
1891	130,283	130	0·99	26	0·19	—	20·0
1892	132,895	118	0·88	24	0·18	3	20·3
1893	136,168	103	0·75	18	0·13	12	17·4
1894	139,519	62	0·44	7	0·05	1	11·2
1895	142,958	79	0·55	14	0·09	13	17·7
1896	146,479	74	0·50	13	0·08	28	17·0
1897	150,087	117	0·77	20	0·13	34	17·0
1898	153,783	80	0·52	17	0·11	23	21·2
1899	157,414	94	0·59	19	0·12	52	20·2
1900	161,452	95	0·58	25	0·15	47	26·3
1901	165,308	73	0·44	11	0·06	57	15·0
1902	168,909	69	0·40	9	0·05	68	13·0
1903	172,598	100	0·57	14	0·08	76	14·0
1904	176,313	40	0·22	9	0·05	57	22·5
1905	180,054	39	0·21	8	0·04	58	20·5
1906	183,823	77	0·41	13	0·07	69	16·9
1907	187,620	62	0·33	13	0·07	56	21·0
1908	191,446	55	0·29	7	0·03	76	12·7

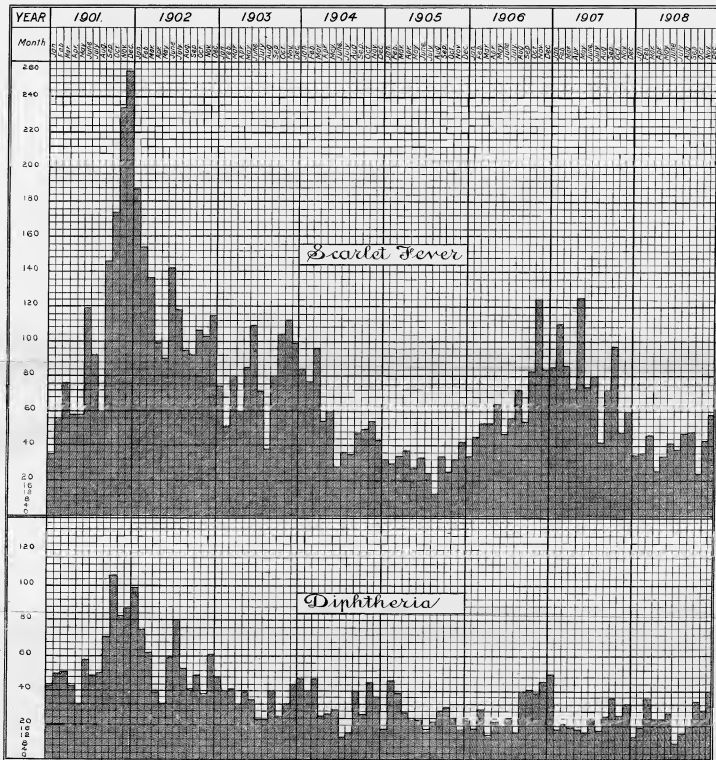
Death-rate from Enteric Fever per 1,000 persons living :—

1875—80	1881—90	1891—1900	1898—1907	1908
0·37	0·33	0·14	0·07	0·03

The foregoing Tables show that the mortality from enteric fever is exceedingly low, and that there has been a progressive decline in that mortality since the period 1875—80. The mortality rate for 1908 was the lowest on record. The attack rate was, with the exception of that in 1904 and 1905, also the lowest rate recorded. The decline in the prevalence of enteric fever during recent years has been one of the most gratifying features in the health statistics of Cardiff.

Although polluted water is not invariably the sole cause of enteric fever, this disease is generally recognised as a water borne disease. The decline, therefore, must to some extent be attributed to the excellent quality and abundant quantity of the water supply to the district.

SHOWING THE NOTIFICATIONS OF SCARLET FEVER AND DIPHTHERIA IN EACH MONTH DURING
THE YEARS 1901-1908.



Of the 55 cases notified, 26 were males and 29 females; 17 of the cases had their origin outside the district. Upon examination of the drainage of the residences of the persons suffering from enteric fever, 14 houses were found to have defective drains. Seven of the cases notified were found to be associated with others suffering from this disease in the same house, and by whom they were possibly infected. In two instances the possible origin of the infection was the consumption of shell fish; and in 8 cases the diagnosis was doubtful. The ages of those attacked were as follows:—

0—5 years	...	...	...	...	...	2
5—15	„	...	...	...	...	12
15—25	„	...	...	...	...	15
25—65	„	...	...	...	...	26

Several specimens of blood from patients suspected to be suffering from enteric fever have been sent by medical practitioners, to the Public Health Laboratory for examination by the Widal test; of the 68 cases examined, a positive reaction was obtained in 39 instances.

TUBERCULOSIS.—The deaths from all forms of tuberculosis during the year 1908 amounted to 303, including 210 from pulmonary consumption or phthisis. The mortality from phthisis was equal to an annual death-rate of 1·09 per 1,000, as compared with 1·24, the average rate in the ten years 1898—1907.

The mortality from phthisis in Cardiff since the year 1880 is shown in the following Table:—

TABLE LVIII.

Year.	Death-rate per 1,000.	Year.	Death-rate per 1,000.
1880	3·21	1894	1·62
1881	2·96	1895	1·67
1882	2·86	1896	1·38
1883	2·67	1897	1·99
1884	2·97	1898	1·32
1885	3·58	1899	1·32
1886	2·78	1900	1·25
1887	2·72	1901	1·05
1888	2·80	1902	1·29
1889	2·79	1903	1·19
1890	3·18	1904	1·36
1891	2·78	1905	1·28
1892	1·82	1906	1·20
1893	1·68	1907	1·17
		1908	1·09

TABLE LIX.

Death-rates from phthisis per 1,000 persons living in the several Municipal Wards :—

	1901	1902	1903	1904	1905	1906	1907	1908
CARDIFF	1.05	1.29	1.19	1.36	1.28	1.20	1.15	1.09
Roath Ward	0.60	1.01	0.70	1.45	1.12	0.74	0.72	0.71
Park "	1.10	0.60	0.80	1.01	0.89	0.69	0.79	0.82
Splott "	0.50	0.90	0.60	0.54	0.96	1.12	0.59	0.81
Central "	1.20	1.60	1.60	1.83	1.43	1.23	0.62	1.22
South "	0.90	1.90	1.30	2.15	1.30	1.15	1.54	1.53
Cathays "	0.30	0.50	0.70	0.84	0.88	0.67	0.75	1.04
Adamsdown Ward ...	0.90	1.10	1.50	1.03	0.95	1.96	1.59	1.09
Riverside "	0.70	1.70	0.50	0.66	1.00	0.94	1.00	1.48
Canton "	0.70	0.40	0.50	0.88	1.17	0.78	1.02	0.76
Grangetown "	0.70	0.70	1.10	1.27	1.21	1.34	1.10	0.90

From the above Table it will be seen that the distribution of the higher rates of mortality from phthisis corresponds somewhat closely with that of the higher rates of mortality from all causes shown in Table XXXII. The central and more densely populated parts of the town, being those in which all the conditions favourable to the growth of the Tubercle Bacillus and to the spread of infection are most in evidence, i.e., poverty, intemperance, dirt, neglect, overcrowding, unsatisfactory housing, and ignorance.

VOLUNTARY NOTIFICATION OF PHTHISIS.—The number of notifications received by the Medical Officer of Health from medical practitioners since the year 1902, is shown in the following Table :—

Year.	Total No. of Notifications.	No. of Notifications from the Union Workhouse.
1902	109	27
1903	163	43
1904	205	54
1905	167	50
1906	141	43
1907	133	39
1908	248	89

A system of voluntary notification of cases of phthisis was adopted in the year 1901, when a scale of fees to medical men notifying, was framed in accordance with that under the Infectious Diseases (Notification) Act. Upon the receipt of the notification, the residence of the patient (unless in the Workhouse Infirmary or other Medical Institution) is visited by one of the Women Health Visitors, a pamphlet containing simple directions for dealing with infectious material, and a short statement bearing upon the hygienic management of the case, is left with the patient or with those in charge. In all cases of death from phthisis or change of residence within the district, a letter and stamped addressed post-card is sent to the occupier of the house, offering disinfection of the premises and infected articles free of charge.

Facilities are given in the Public Health Laboratory for the bacteriological examination of sputum of persons suspected to be suffering from phthisis. This examination is made free of charge in all cases notified. Notices have been fixed in all places under the control of the Sanitary Authority and in public places, calling attention to the Bye-law prohibiting spitting in such places. Suitable sputum flasks are supplied without charge to those who are unable to procure them, on application to the Health Visitors.

The following Report of the Medical Officer of Health was submitted to the Health Committee in December, 1908.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1908.

"The Local Government Board have issued an Order in pursuance of Section 130 of the Public Health Act, 1875, with the view of affording facilities for the extension of administrative action for the prevention of tuberculosis, and for providing for the notification to the Medical Officer of Health of cases of pulmonary tuberculosis occurring amongst the inmates of Poor Law Institutions, or amongst persons under the care of District Medical Officers. The Order directs that the Medical Officer of a Poor Law Institution, and the District Medical Officers who are in attendance upon a case of pulmonary tuberculosis shall within 48 hours after recognizing the nature of the case, post to the Medical Officer of Health a notification of such case on printed forms to be supplied by the Poor Law Authority. Provision is also made for the notification by the Master of the Workhouse of the address of any person leaving the Workhouse in respect of whom a notification has been made by the Medical Officer of the Institution, and for the notification by the Relieving Officer of any change of address of a person in respect of whom a notification has been made by the District Medical Officer. The remuneration allowed by the Order and payable by the Sanitary Authority is, in the case of the Medical Officers referred to, at the rate of one shilling for every notification, but where in relation to any one case, two or more notifications have been made, at the rate of sixpence for every such notification after the first. In the case of the Master of the Workhouse or the Relieving Officer, the remuneration is at the rate of three pence for every notification. In a circular recently issued by the Local Government Board relating to this matter, Sanitary Authorities are advised to utilize the powers which they possess and which are conferred by the Order for the purpose of preventing the spread of infection from pulmonary tuberculosis. As the powers referred to have already been utilized for some years past in this District by your Medical Officer of Health (under a system of voluntary notification) it is unnecessary to set them forth in detail. The effect of the Order therefore, so far as your Authority is concerned will be the extension and further development of the administrative measures which are already in operation. The Order will take effect on and after January 1st, 1909."

A memorandum has recently been issued by the Medical Officer of the Local Government Board, relating to the administrative measures which may be taken by Sanitary Authorities in connection with the Public Health (Tuberculosis) Regulations, and generally with respect to the prevention of the spread of Tuberculosis.

The measures advocated in this memorandum comprise,

- (1)—The voluntary notification of all cases of pulmonary tuberculosis, other than those which are compulsorily notifiable under the Regulations or under any Local Act of Parliament.

This system was adopted in Cardiff in the year 1901.

- (2)—Educational measures; these comprise means for instructing the members of the general community, those more directly exposed to the infection of tuberculosis, and those already tuberculous, in the essentials of the prevention of this disease.

This system has been carried out in this district since the adoption of notification, chiefly by means of Health Visitors who visit infected houses.

- (3)—Early diagnosis of cases; amongst the most valuable means for securing early detection of the disease are (a) the provision of facilities for the gratuitous bacteriological examination of sputum, and (b) the establishment of special tuberculosis dispensaries.

The former of these means has been in operation for some years past at the Cardiff and County Public Health Laboratory. No special dispensary has been established, but poor patients (other than paupers) are treated in the out-patient department of the Cardiff Infirmary, and in the Provident Dispensary.

- (4)—The provision of spit-bottles free of charge to the poor.

During the past two years such bottles have been supplied by the Health Committee to those who apply for them; usually these applications come to the Medical Officer of Health through the Health Visitors.

- (5)—Sanatorium treatment.

No institution of this kind has been established in Cardiff.

Tuberculosis is an infectious disease caused by the tubercle bacillus. Its development is aided by defective nutrition and by other conditions unfavourably influencing personal health, and by insanitary circumstances of environment; but the indispensable element in its causation is the tubercle bacillus, and the disease can be prevented by avoiding infection. The spread of the disease is favoured largely by the ignorance displayed by many as to the nature and behaviour of the infection. Educational measures, and especially the instruction of the persons infected, and of those directly exposed to infection, are among the most important means of reducing the amount of this disease. In the memorandum referred to, it is suggested that much good could be done in this direction by special instruction of various social groups, trades unions, friendly societies, school centres, &c. Precise knowledge of the conditions under which tuberculosis is transmissible, of the channels of infection, and of means for appropriate disposal of expectoration, etc. are most desirable. This form of education forms an important part of the duties of the Health Visitors, the procedure being somewhat as follows :—

When a notification of a case of phthisis has been received by the Medical Officer of Health, inquiries are made by this officer, by a trained assistant, or by the Health Visitors. These visits are made with the consent of the medical practitioner attending the case, and care is taken not to interfere with any advice which he may have already given. Revisits are made from time to time to encourage the patient in carrying out the necessary treatment, and in taking precautions against infection. If necessary, the intervention of the Medical Officer of Health is called for, in order to deal with any insanitary conditions affecting the infected house or locality, and measures are taken for cleansing and disinfecting the premises. Special attention is paid to prevent the indiscriminate expectoration of phthisical persons, and, when necessary, spit bottles are provided. Free ventilation of the occupied rooms, cleanliness, and suitable diet are also points to which the Health Visitors direct their attention. It is, however, often found difficult to secure the attention of the persons interested to all the essential precautionary measures, if they are treated at home throughout the whole course of the illness. Hence the importance of a short course of Sanatorium treatment, in which the patients are trained in the methods of disposal of sputum, and in the general hygienic regulations of life.

The connection of Tuberculosis with meat and milk supply has been referred to in another part of this Report.

DISINFECTION.—The disinfection of infected premises and articles is carried out by the Sanitary Authority free of charge. When possible all articles of clothing and bedding which have been in contact with the infected person are removed from the premises to the temporary disinfecting station in Sloper Road, and submitted to disinfection by saturated steam, at a pressure of 30 lbs. on the square inch, in a "Washington Lyon's" high pressure steam disinfecting apparatus. This corresponds to a temperature of 249° F., to which the articles are exposed for half an hour.

Two disinfectors are constantly employed at this station, which comprises the disinfecting chamber constructed as a double cylinder—an inner one containing the articles to be sterilized, surrounded by an outer steam jacket. The apparatus passes through a wall, the two ends of the cylinder opening into different rooms completely separated one from the other. The infected articles are taken to one room, placed in the disinfecting chamber, and when the process is complete, removed into the other room, and subsequently delivered to the owner. A self recording pressure gauge has recently been connected with the apparatus.

Infected premises are disinfected either by fumigation with sulphur dioxide, with formaldehyde, or by means of a spray of formalin. The routine disinfection during the year comprises the following list :—

Houses disinfected	...	...	...	...	...	...	942
Articles of bedding and clothing disinfected	...	...	...	...	...	...	8,950
" " " destroyed	...	...	...	...	...	...	136

The provision of permanent buildings for the disinfecting station has been from time to time under the consideration of the Health Committee, but no decision has yet been arrived at. In the meantime, the temporary buildings are, from their state of repair and incompleteness, becoming unsuitable for the constantly increasing amount of work carried on there. The most suitable site now available would seem to be the land adjoining the Mortuary belonging to the Corporation, which possibly might be extended by the acquisition of a piece of ground in the immediate neighbourhood. The Washington Lyon's Steam Disinfecting Apparatus at present in use could, of course, be removed to the new site, and the same staff of officials could attend both to the Mortuary and the Disinfecting Station.

The Committee has also to consider the administration of the Cleansing of Persons Act, an Act which enables Local Authorities to provide cleansing for persons and articles of clothing infested with vermin. It is usual in places where this Act has been put into operation to provide the necessary appliances at the Disinfecting Station, with separate baths and waiting rooms for the sexes, together with some simple laundry accommodation for dealing with articles which cannot be disinfected by steam. Such buildings usually provide also the accommodation required under Section 15 of the Infectious Diseases (Prevention) Act, 1890, for the temporary shelter of persons who have been compelled to leave their dwellings for the purpose of enabling such dwellings to be disinfected by the Local Authority. There are three classes of persons for whom the accommodation under the Cleansing of Persons Act would be particularly required.

- (a)—Midwives: Under the Rules of the Central Midwives Board, whenever a midwife has been in attendance upon a patient suffering from puerperal fever, or from any other infectious illness, she is required to disinfect herself, her instruments, appliances and clothing to the satisfaction of the Local Supervising Authority. The bathing, laundry, and disinfecting arrangements suggested would be most suitable for such cases.
- (b)—Verminous children attending Public Elementary Schools
- (c)—Persons residing in Common or Seamen's Lodging Houses.

In connection with this suggestion it must be borne in mind that the Children Act, 1908, gives special power to Local Education Authorities. Section 122 (1) provides that "a Local Education Authority may direct their Medical Officer to examine the person and clothing of any child attending a public elementary school, and if on examination any such child is found to be infested with vermin or is in a foul or filthy condition, the Local Education Authority may require the parents to cleanse the person and the clothing of the child within 24 hours after the receipt of the notice," and further (3) provides that "where any sanitary authority within the district of a Local Education Authority have provided any premises or appliances for cleansing the person or clothing of persons infested with vermin, the Sanitary Authority shall, if so required by the Local Education Authority, allow the Local Education Authority to use such premises and appliances for the purpose of this section, upon such payment (if any) as may be agreed between them."

CARDIFF SANATORIUM.

The following report of the Medical Superintendent shows that during the year 1908, 730 cases of infectious disease were under treatment, as compared with 1,087 in the year 1907.

	0 to 5 years.	5 to 15 years.	15 to 25 years.	25 to 35 years.	35 to 45 years.	45 to 55 years.	55 to 65 years.	65 to 75 years.	Totals.
Remaining in Hospital 31st Dec., 1907 :									
Scarlet Fever	35	63	7	3	1	1	...	...	110
Diphtheria	4	6	4	5	1	...	...	...	20
Enteric Fever ... ..	...	4	1	2	...	1	...	...	8
Totals	39	73	12	10	2	2	...	...	138
Admitted during the year 1908 :—									
Scarlet Fever	116	219	21	12	1	1	...	...	370 ✓
Diphtheria	51	88	24	8	5	1	...	1	178
Enteric Fever	3	8	10	13	8	1	...	...	43
Other Diseases ... ..	...	1	...	...	...	...	...	...	1
Totals	170	316	55	33	14	3	...	1	592 ✓
Totals under treatment in 1908 ...	209	389	67	43	16	5	...	1	730
Of the above there were discharged :—									
(a) Recovered—									
Scarlet Fever	127	232	22	11	2	2	...	...	396
Diphtheria	45	82	25	12	6	1	...	1	172
Enteric Fever	3	11	7	13	6	2	...	...	42
Other Diseases ... ..	...	1	...	...	...	...	...	...	1
Totals	175	326	54	36	14	5	...	1	611
(b) Died—									
Scarlet Fever	5	2	1	...	...	...	...	...	8 ✓
Diphtheria	4	...	...	...	...	...	...	...	4
Enteric Fever ... ..	...	...	2	1	2	...	...	...	5
Totals	9	2	3	1	2	...	...	...	17
Remaining in Hospital 31st Dec., 1908:									
Scarlet Fever	19	48	5	4	...	...	...	...	76
Diphtheria	6	12	3	1	...	...	...	...	22
Enteric Fever ... ..	...	1	2	1	...	...	...	...	4
Totals	25	61	10	6	...	...	...	...	102
Totals under treatment in 1908 ...	209	389	67	43	16	5	...	1	730

Mortality per cent. under treatment :—

Scarlet Fever ... ..	...	...	...	1.75
Diphtheria ... ..	...	...	...	2.0
Enteric Fever ... ..	...	...	...	9.18

B. W. BROAD, M.B., MEDICAL SUPERINTENDENT.

CARDIFF AND COUNTY PUBLIC HEALTH LABORATORY.

The Laboratory forms part of the buildings of the University College, Cardiff, and is used for teaching purposes in connection with the Public Health and Bacteriological Departments of the College. It is maintained jointly by the Glamorgan County Council and the Corporation of the City of Cardiff, and the Medical Officers of Health of these authorities act as Directors of the Laboratory, having the use of it for any bacteriological or chemical investigations connected with their administrative work. The Laboratory is under the immediate supervision of the Bacteriologist, H. A. Schölberg, M.B. (Lond.), D.P.H. (Camb.), and J. H. Sugden, M.Sc., F.I.C., acts as Chemist and Assistant Bacteriologist.

The following tables show the work which has been carried on in the Laboratory during the year 1908 :—

BACTERIOLOGICAL EXAMINATIONS :—

Suspected Diphtheria	...	...	...	...	...	477
Suspected Typhoid Fever	...	...	...	...	...	316
Sputum for Tubercle Bacilli	...	...	...	...	...	266
Sputum (Notified Phthisis)	...	...	...	...	...	82
Pus Examinations	...	...	...	...	...	43
Milk Examinations	...	...	...	...	...	18
Anthrax	...	...	...	...	...	19
Diseased Meat	...	...	...	...	...	23
Other Examinations	...	...	...	...	...	13
					—	1,257

CHEMICAL EXAMINATIONS :—

Urinalyses	...	...	...	...	...	82
Milk (unofficial samples)	...	...	...	...	...	117
Other Examinations	...	...	...	...	...	31
					—	230

DRINKING WATERS :—

Bacteriological Examinations	...	...	...	...	...	239
Chemical Examinations	...	...	...	...	...	157
					—	396

SEWAGE AND SEWAGE EFFLUENTS :—

Chemical Examinations (Sewage and Effluents)	...	...	90	
Chemical Examinations (Trade Effluents)	...	...	66	
			<hr/>	156
				<hr/>
				2,039

Comparison of the records of 1907 and 1908 :—

Nature of Examinations.	1907	1908	Increase.	Decrease
Suspected Diphtheria ...	527	477	—	50
Suspected Typhoid Fever ...	448	316	—	132
Sputum of Tubercle Bacilli ...	248	348	100	—
Waters—Bacteriological ...	296	239	—	57
„ Chemical ...	190	157	—	33
Diseased Meat ...	11	23	12	—
Anthrax ...	19	19	—	—
Milk Examinations ...	63	135	72	—
Sewages and Effluents ...	158	156	—	2
Other Examinations ...	172	169	—	3
Alternative Agglutinations ...	553	—	—	553
	2,685	2,039	184	830
			Decrease 646.	

This Table shows the contributions of Cardiff and the County towards the three infective diseases :—Diphtheria, Typhoid Fever and Pulmonary Tuberculosis.

Source.	Nature of Infection.	No. of Positive Results.	No. of Negative Results.	Total.	Percentage of Positive Results.
Cardiff	Suspected Diphtheria ...	25	123	148	16.9
County	„ „ ...	75	254	329	22.8
Cardiff	Suspected Typhoid Fever ...	39	29	68	57.3
County	„ „ ...	143	105	248	57.6
Cardiff	Suspected Pulmonary Tuberculosis ...	119	156	275	43.3
County	„ „ „ ...	18	55	73	24.6

This Table gives the number of specimens from the Cardiff and the County respectively.

The samples from Swansea and Ebbw Vale are included in the County figures and amount to 90 (75 specimens and 15 waters). Sewages, effluents, and trade effluents are grouped under one heading—Effluents; and specimens include examinations other than those grouped under waters and effluents.

Source.	Waters Examined.	Effluents Examined.	Specimens Examined.	Total.
Cardiff	143	—	769	912
County	253	156	718	1,127

I have the honour to be, Gentlemen,

Your obedient Servant,

EDWARD WALFORD,

Medical Officer of Health.

APPENDIX.

CITY OF CARDIFF.
LOCAL GOVERNMENT BOARD TABLE. TABLE I.
VITAL STATISTICS OF WHOLE DISTRICT DURING 1908 AND PREVIOUS YEARS.

Year.	Population estimated to Middle of each Year.	Births.		Total Deaths Registered in the District.					Total Deaths in Public Institutions in the District.	Deaths of Non-residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Nett Deaths at all Ages belonging to the District.	
		Number.	Rate.*	Under 1 Year of Age.		At all Ages.							
				Number.	Rate per 1,000 Births registered.	Number.	Rate*	Number.				Rate*	
1	2	3	4	5	6	7	8	9	10	11	12	13	
1898	153,783	5,520	35.9	870	158	2,684	17.4	312	57	...	2,627	17.0	
1899	157,414	5,309	33.7	976	184	2,951	18.7	321	93	...	2,858	18.1	
1900	161,452	5,198	35.2	730	141	2,745	17.0	314	78	...	2,667	16.5	
1901	165,308	5,206	31.4	775	148	2,671	16.1	352	75	57	2,653	16.0	
1902	168,909	5,278	31.2	769	145	2,909	17.2	486	88	44	2,865	16.9	
1903	172,598	5,250	30.4	645	122	2,503	14.5	487	96	89	2,496	14.4	
1904	176,313	5,208	29.5	751	144	2,704	15.3	458	96	87	2,695	15.2	
1905	180,054	5,140	28.5	607	118	2,485	13.8	442	108	66	2,443	13.5	
1906	183,823	5,001	27.2	675	121	2,689	14.6	531	135	64	2,618	14.2	
1907	187,620	4,865	25.9	639	131	2,923	15.6	614	141	37	2,819	15.0	
Averages for years 1898-1907	170,727	5,197	30.4	743	143	2,726	15.9	431	96	...	2,674	15.6	
1908	191,446	5,172	27.0	644	124	2,610	13.6	522	136	64	2,538	13.2	

* Rates in Columns 4, 8, and 13 are calculated per 1,000 of estimated population.

LOCAL GOVERNMENT BOARD TABLE II.

VITAL STATISTICS OF SEPARATE LOCALITIES IN 1908 AND PREVIOUS YEARS.

NAMES OF LOCALITIES.	CITY OF CARDIFF. (Whole District).				EAST CARDIFF. Registration Sub-District.				CENTRAL CARDIFF. Registration Sub-District.				WEST CARDIFF. Registration Sub-District.			
	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.
1898	153,783	5,520	2,627	870	47,124	1,821	714	288	54,217	1,610	924	279	51,921	2,089	989	303
1899	157,414	5,309	2,858	976	49,040	1,750	753	307	54,300	1,617	1,009	308	53,861	1,942	1,096	361
1900	161,452	5,198	2,667	730	51,035	1,658	755	214	54,358	1,510	907	229	55,874	2,030	1,005	287
1901	165,308	5,206	2,653	775	53,111	1,667	668	226	54,402	1,572	912	255	57,962	1,967	1,073	294
1902	168,909	5,278	2,865	769	56,613	1,694	733	241	54,541	1,624	1,010	230	60,476	1,960	1,122	293
1903	172,598	5,250	2,496	645	57,013	1,643	633	194	54,299	1,561	853	206	61,339	2,046	1,010	245
1904	176,313	5,208	2,695	751	57,930	1,626	719	224	55,219	1,575	884	218	61,421	2,007	1,092	309
1905	180,054	5,140	2,443	607	58,445	1,634	636	175	55,343	1,536	843	187	61,351	1,970	964	245
1906	183,823	5,001	2,618	675	59,009	1,554	680	188	55,424	1,541	920	216	62,419	1,906	1,018	271
1907	187,620	4,865	2,819	639	59,832	1,529	702	179	55,674	1,475	966	207	62,384	1,861	1,151	253
Averages of years 1898 to 1907	170,727	5,197	2,674	743	54,915	1,657	699	223	54,777	1,562	922	233	58,900	1,977	1,052	286
1908	191,446	5,172	2,538	644	60,766	1,569	659	180	56,196	1,555	825	181	63,411	2,048	1,054	283

LOCAL GOVERNMENT BOARD TABLE.

TABLE III.

CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1908.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE DISTRICT.						TOTAL CASES NOTIFIED IN EACH LOCALITY.				No. of CASES REMOVED TO HOSPITAL FROM EACH LOCALITY.			
	At all Ages.	At Ages—Years.					East Cardiff Regis. Sub-Dist.	Central Cardiff Regis. Sub-Dist.	West Cardiff Regis. Sub-Dist.	Total Cases removed to Hospital.	East Cardiff Regis. Sub-Dist.	Central Cardiff Regis. Sub-Dist.	West Cardiff Regis. Sub-Dist.	Total Cases removed to Hospital.
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.								
Small-pox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cholera ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria (including Membranous Croup)...	291	5	92	136	29	28	1	95	62	134	63	40	79	182
Erysipelas ...	167	7	9	7	10	120	14	50	66	51	...	...	...	...
Scarlet Fever ...	475	6	141	285	28	15	...	182	96	197	143	76	151	570
Typhus Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever ...	55	...	2	12	15	26	...	20	25	10	14	19	9	42
Relapsing Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued Fever ...	1	...	...	1	...	...	...	...	...	1	...	...	...	...
Puerperal Fever ...	15	...	...	...	4	11	...	8	6	1	...	...	...	...
Plague ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals ...	1,004	18	244	441	86	200	15	355	255	394	920	135	239	594

LOCAL GOVERNMENT BOARD TABLE.

TABLE IV.

CAUSES OF, AND AGES AT, DEATH DURING THE YEAR 1908.

CAUSES OF DEATH.	DEATHS IN OR BELONGING TO WHOLE DISTRICT AT SUBJOINED AGES.							Deaths in or belonging to Localities (at all Ages).			Total Deaths in Public Institutions in the District.
	All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	East Cardiff Reg. Sub.-Dis.	Central Cardiff Reg. Sub.-Dis.	West Cardiff Reg. Sub.-Dis.	
Small-pox ... ..	...	...	...	...	...	...	...	...	...	...	...
Measles	5	2	3	...	...	...	...	1	3	1	...
Scarlet Fever	10	...	5	5	...	...	...	2	...	8	8
Whooping-cough	48	25	21	2	...	...	...	21	11	16	1
Diphtheria (including Mem- branous Croup)	22	...	19	3	...	...	...	8	2	12	10
Croup	2	...	2	...	...	...	...	...	2	...	...
Fever { Typhus ... ..	...	...	...	...	...	...	...	...	...	...	...
Enteric	7	...	...	...	2	5	...	1	1	5	8
Other continued .	...	...	...	...	...	...	...	...	...	...	...
Epidemic Influenza	39	4	2	...	1	18	14	18	13	8	...
Diarrhœa	127	105	17	...	...	3	2	41	29	57	16
Enteritis	48	36	6	1	...	2	3	17	16	15	5
Puerperal Fever	4	...	...	...	2	2	...	...	1	3	1
Erysipelas	9	4	...	...	1	2	2	2	3	4	1
Phthisis	218	...	2	9	51	150	6	50	69	99	47
Other Tubercular Diseases	94	29	29	15	7	13	1	23	33	38	15
Cancer, Malignant Disease	142	...	1	1	1	105	34	34	48	60	47
Bronchitis	181	30	7	1	1	61	81	57	40	84	36
Pneumonia	175	46	30	9	7	67	16	38	69	68	17
Pleurisy	12	1	...	1	...	8	2	1	2	9	3
Other Diseases of Respira- tory Organs	24	7	...	...	...	15	2	5	8	11	4
Alcoholism	20	...	...	...	...	17	3	6	7	7	2
Cirrhosis of Liver	15	12	...	...	...	1	1	4	7	4	1
Veneral Diseases	113	113	...	...	...	...	...	28	32	53	6
Premature Birth	6	...	...	...	2	4	...	1	4	1	...
Diseases and Accidents of Parturition	305	8	2	10	15	169	101	81	95	129	61
Heart Diseases	97	13	11	19	13	35	6	11	70	16	49
Accidents	14	...	...	...	2	10	2	3	5	6	2
Suicides	1	...	...	...	...	1	...	...	...	1	1
Homicide	1	...	...	...	1	...	...	...	1	...	...
Execution	1	...	...	...	1	...	...	...	1	...	...
All other causes	799	209	37	34	21	274	224	206	254	339	181
All Causes	2,538	644	194	111	127	962	506	659	825	1,054	522

LOCAL GOVERNMENT BOARD TABLE.

TABLE V

INFANTILE MORTALITY DURING THE YEAR 1908.

DEATHS FROM STATED CAUSES IN WEEKS AND MONTHS UNDER ONE YEAR OF AGE.

CAUSE OF DEATH.				Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under One Year.
All Causes.	Certified	...	...	133	33	26	23	215	78	49	58	43	38	40	24	23	28	13	33	642
		Uncertified	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2
i. Common Infectious Diseases.	Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	2
	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Diphtheria, including Membranous Croup	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Whooping Cough	...	...	...	...	...	...	2	4	3	4	2	3	2	2	1	...	2	...	25
ii. Diarrhoeal Diseases.	Diarrhoea, all forms	...	1	1	2	...	4	15	6	9	11	12	14	8	9	10	2	5	...	105
	Enteritis, Muco-enteritis, } Gastro-enteritis	...	...	2	1	1	4	3	5	6	7	2	2	1	2	1	1	2	...	36
	Gastritis, Gastro-intestinal Catarrh }	...	...	...	1	...	1	1	1	1	2	2	1	...	1	...	...	...	...	10
	Premature Birth	...	75	10	8	2	95	13	2	2	...	...	1	...	...	...	...	...	...	113
iii. Wasting Diseases.	Congenital Defects	...	11	2	2	1	16	1	1	...	...	...	...	...	...	...	...	...	...	18
	Injury at Birth	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Want of Breast-milk, } Starvation	...	1	...	1	1	3	1	4	5	1	1	...	...	...	...	...	...	...	15
	Atrophy, Debility, } Marasmus	...	23	4	5	5	37	16	6	7	3	2	3	...	1	2	2	1	...	80
iv. Tuberculous Diseases.	Tuberculous Meningitis	...	1	...	...	...	1	...	...	1	...	1	1	...	...	...	1	...	...	5
	Tuberculous Peritonitis } Tabes Mesenterica	...	...	...	...	...	...	...	4	5	2	2	1	1	1	2	2	2	...	22
	Other Tuberculous Diseases	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	2
	Erysipelas	...	...	...	...	2	2	...	...	1	...	...	...	1	...	...	...	...	...	4
v. Other Causes.	Syphilis	...	1	3	...	...	4	7	1	...	...	...	...	...	...	...	...	...	...	12
	Rickets	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1	...	3
	Meningitis (not Tuberculous)	...	...	...	...	...	2	1	1	...	2	...	4	...	1	...	1	...	...	12
	Convulsions	...	9	3	3	5	20	9	5	3	5	3	2	1	...	2	...	2	...	52
	Bronchitis	...	...	2	...	2	4	3	2	4	1	5	3	1	1	2	2	2	...	30
	Laryngitis	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	2	...	3
	Pneumonia	...	...	1	1	...	2	1	4	5	4	2	5	3	5	4	1	10	...	46
	Suffocation, overlying	...	1	1	...	1	3	2	3	1	1	...	1	...	...	...	...	...	...	11
	Other causes	...	12	4	2	3	21	2	2	...	4	2	...	1	1	2	1	2	...	38
Totals ...				135	33	26	23	217	78	49	58	43	38	40	24	23	28	13	33	644

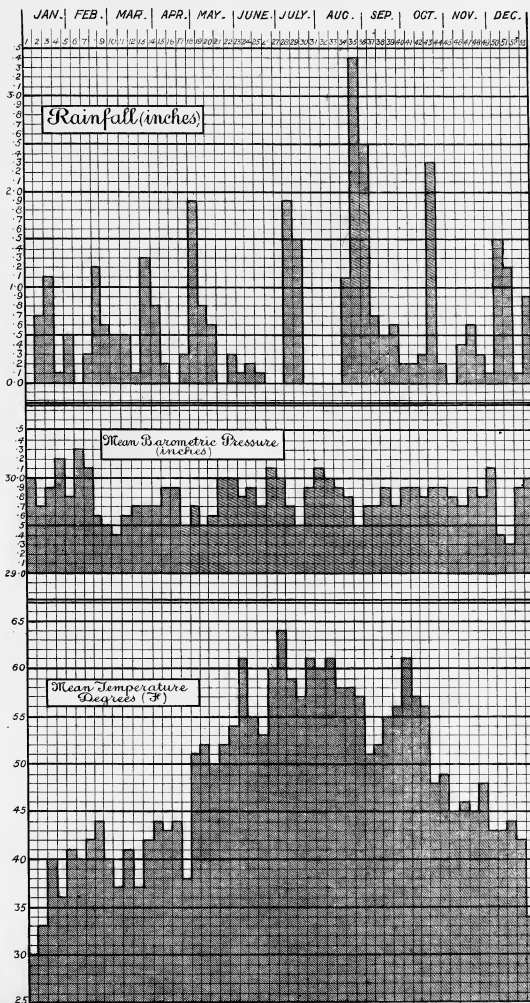
METEOROLOGICAL OBSERVATIONS TAKEN AT PENYLAN, CARDIFF, DURING THE YEAR 1908

MONTH.	*Mean Barometric Pressure.		*HYGROMETER.			TEMPERATURE.								RAINFALL.					
	Uncorrected.	At M.S.L. and 32° F.	Wet Bulb (Mean.)	Dry Bulb (Mean.)	Mean Relative Humidity.	Maximum.	Minimum.	Mean of Maximum.	Mean of Minimum.	Mean Temperature.	Grass (Mean.)	Solar Maximum (Mean.)	Earth (Mean.)		Bright Sunshine.	Amount.	Greatest Fall in 24 hours.	Date of Greatest Fall.	No. of days with Rain (0·01 in. or more.)
													1 foot.	4 feet.					
January	29-953	30-167	36-8	36-2	94	55-6	18-8	41-4	31-9	36-6	33-3	62-9	36-6	41-9	70-6	2-58	0-90	16th	19
February	29-933	30-138	41-6	40-0	87	52-0	30-0	46-8	36-9	41-8	33-9	80-9	40-3	42-2	77-3	2-33	0-87	16th	20
March	29-668	29-874	40-0	38-0	84	54-0	26-3	45-9	34-5	40-2	31-4	87-7	39-8	42-2	108-4	3-25	0-89	24th	22
April	29-784	29-979	44-9	40-6	71	61-0	26-0	50-6	36-6	43-6	32-9	100-9	43-4	44-0	164-1	2-63	0-73	29th	16
May	29-688	29-852	53-6	50-7	81	72-8	38-9	60-6	46-4	53-5	42-6	114-9	51-1	49-0	201-0	1-88	0-31	13th	20
June	29-944	30-091	58-0	53-9	76	79-2	41-2	66-7	50-0	58-3	45-8	126-1	61-4	55-3	273-7	0-47	0-12	11th	9
July	29-732	29-870	60-8	56-8	76	83-1	44-0	68-8	53-1	61-0	49-5	127-7	63-0	58-7	232-2	3-53	1-21	16th	14
August	29-825	29-964	59-2	55-2	76	76-1	44-0	66-2	51-0	58-6	46-3	120-4	61-6	59-6	228-8	6-33	1-74	31st	14
September	29-823	29-982	54-7	52-6	86	74-1	38-5	61-2	48-6	54-9	43-7	109-1	55-8	56-6	132-1	2-90	0-61	3rd	19
October	29-948	30-110	53-1	52-1	93	74-1	31-9	59-9	48-0	53-9	42-9	96-2	55-3	56-2	94-8	3-14	1-06	19th	22
November	29-856	30-043	46-1	44-5	88	58-9	28-8	51-2	41-4	46-3	35-3	77-4	47-1	51-2	76-5	1-52	0-41	21st	16
December	29-709	29-908	41-1	40-1	92	53-3	19-4	45-4	37-1	41-2	33-9	62-1	43-6	46-8	37-4	3-97	0-71	9th	24
Totals, Means, etc	Mean 29-822	Mean 29-998	Mean 49-2	Mean 46-7	Mean 83	Max. 83-1	Min. 18-8	Mean 55-4	Mean 43-0	Mean 49-2	Mean 39-0	Mean 97-2	Mean 50-2	Mean 50-3	Total 1699-9	Total 34-53	...	...	Total 215

* From Readings at 9 a.m. and 9 p.m.

Chart D.

SHOWING RAINFALL, MEAN BAROMETRIC PRESSURE AND
MEAN TEMPERATURE, RECORDED AT PENYLAN, CARDIFF,
IN EACH WEEK DURING THE YEAR 1908.



CITY OF CARDIFF.

ESTIMATED POPULATION

1908—191,446.

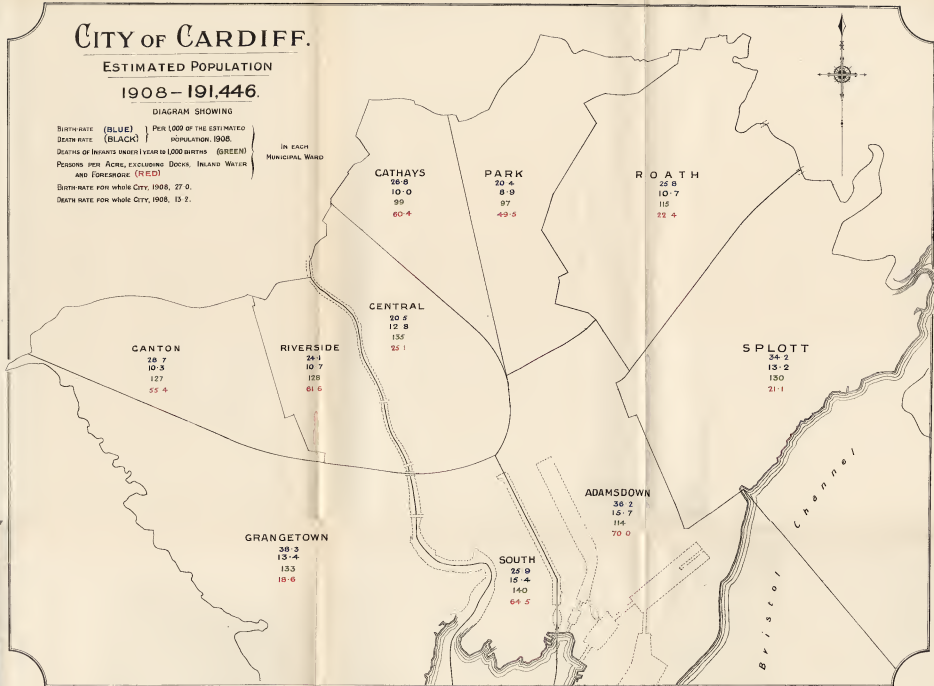
DIAGRAM SHOWING

BIRTH RATE (BLUE) } PER 1,000 OF THE ESTIMATED
DEATH RATE (BLACK) } POPULATION, 1908.
DEATHS OF INFANTS UNDER 1 YEAR TO 1,000 BIRTHS (GREEN)
PERSONS PER ACRE, EXCLUDING DOCKS, INLAND WATER
AND EGRESSHORE (RED)

IN EACH
MUNICIPAL WARD

BIRTH RATE FOR WHOLE CITY, 1908, 27.0.

DEATH RATE FOR WHOLE CITY, 1908, 13.2.



DEATHS FROM SPECIFIED CAUSES AT ALL AGES, AND AT SIX GROUPS OF AGES, IN CARDIFF
DURING THE YEAR, 1908.

CAUSES OF DEATH.	0 to 1		1 to 5		5 to 15		15 to 25		25 to 45		45 and upwards		ALL AGES.			Rate per 1,000 persons living.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total	
Measles ...	2	...	1	2	3	2	5	0-02
Scarlet Fever	4	1	3	2	7	3	10	0-05
Epidemic Influenza	4	1	1	9	9	9	5	19	20	39	0-19
Whooping Cough ...	12	13	11	10	...	2	23	25	48	0-25
Diphtheria, Membranous Cough	10	9	1	2	11	11	22	0-11
Enteric Fever	1	1	4	1	5	2	7	0-03
Diarrhoea, Dysentery ...	36	31	5	9	...	...	...	...	3	1	1	42	44	86	0-44
Epidemic or Zymotic Enteritis ...	23	15	2	1	...	...	...	...	...	...	...	25	16	41	0-21
Syphilis ...	5	7	...	1	...	...	...	...	1	...	...	6	8	14	0-07
Gonorrhoea	1	1	1	0-00
Erysipelas ...	3	1	...	...	...	...	1	1	1	1	1	5	4	9	0-04
Puerperal Fever ...	...	...	...	...	...	...	...	...	...	...	...	2	3	5	0-02
Pyæmia, Septicæmia	1	1	...	1	1	1	1	2	0-00
Septic, Ulcerative or Infective Endocarditis	1	1	1	2	0-00
Other Allied Diseases	1	1	1	2	0-00
Rheumatic Fever ...	...	...	...	...	4	3	...	2	4	3	...	8	8	16	0-08
Rheumatism of the Heart	1	1	2	0-00
Tuberculosis of Brain or Meninges, Acute Hydrocephalus ...	2	...	5	7	8	5	...	...	...	...	...	15	15	30	0-15
Tuberculosis of Larynx	1	1	0-00
Tuberculosis of Lungs, Phthisis, Phthisis Pulmonalis	1	1	2	7	22	23	81	67	5	1	111	99	210	1-09
Tuberculosis of Intestines, Tubæ Mesentericæ ...	13	9	2	4	1	1	...	...	2	1	...	19	15	34	0-17
General Tuberculosis, Tubercular Disease of undefined position ...	1	1	3	5	...	...	1	3	3	3	...	8	12	20	0-10
Other forms of Tuberculosis, Scrofula	2	1	1	1	1	1	...	1	4	4	8	0-04
Thrush ...	1	1	1	2	0-00
Acute Alcoholism, Delirium Tremens	1	1	...	1	1	0-00
Chronic Alcoholism	1	1	1	1	2	0-01
Other Chronic Poisonings	1	1	0-00
Osteoarthritis, Rheumatoid Arthritis	1	1	1	8	1	1	3	10	13	0-06
Gout	1	1	0-00
Cancer ...	...	...	1	1	...	1	...	45	60	15	18	62	79	141	0-73
Diabetes Mellitus ...	...	...	...	...	...	...	2	10	5	2	1	12	8	20	0-10
Purpura Hemorrhagica	0-00
Anæmia, Leucocythæmia	1	1	1	8	2	11	13	0-06
Lymphadenoma, Hodgkin's Disease	1	1	1	0-00
Premature Birth ...	68	45	...	...	...	...	...	...	...	...	...	68	45	113	0-58
Debility at Birth ...	33	16	...	...	...	...	...	...	...	...	...	33	16	49	0-24
Atelactæmia	2	2	2	4	0-01
Congenital Defects ...	14	4	...	1	...	...	...	...	...	...	...	14	5	19	0-09
Want of Breast Milk ...	5	10	...	...	...	...	...	...	...	...	...	5	11	16	0-08
Atrophy, Debility, Marasmus ...	18	13	3	...	1	...	...	2	4	...	...	23	18	41	0-21
Dentition ...	2	2	...	1	...	...	...	...	...	...	...	2	3	5	0-02
Rickets ...	2	1	...	...	...	...	...	...	...	...	...	2	2	4	0-02
Old Age, Senile Decay ...	...	...	...	...	...	...	...	9	15	57	78	66	93	159	0-83
Convulsions ...	25	27	9	2	...	1	...	...	...	...	...	36	29	65	0-32
Meningitis ...	5	7	3	5	2	...	...	...	...	...	...	13	13	26	0-13
Encephalitis ...	...	...	...	...	...	...	...	1	1	...	...	1	1	2	0-01
Apoplexy ...	...	...	...	...	...	...	...	2	13	9	6	11	19	30	0-15
Softening of Brain	3	3	3	6	0-01
Hemiplegia, Brain Paralysis ...	...	...	...	...	...	...	...	5	9	1	3	6	12	18	0-09
Other forms of Insanity	5	2	1	2	6	8	14	0-04
Cerebral Tumour ...	...	...	...	...	...	...	1	2	...	3	...	5	1	6	0-03
Epilepsy ...	...	...	...	...	...	...	3	5	...	1	3	6	9	15	0-04
Laryngismus Stridulus	1	1	2	0-00
Locomotor Ataxy ...	...	...	...	...	...	...	1	1	...	...	...	1	1	2	0-01
Paraplegia, Diseases of Spinal Cord ...	...	1	1	...	...	...	1	4	2	2	1	7	5	12	0-06
Other and ill-defined Diseases of Brain or Nervous System ...	...	...	...	...	1	...	...	5	5	...	2	5	8	13	0-06
Otitis, Otorrhoea	2	2	...	2	4	0-01
Pericarditis	1	1	...	1	1	0-00
Endocarditis, Valvular Diseases of the Heart	2	...	2	2	6	4	17	12	6	6	33	1	24	57	0-29
Angina Pectoris	2	1	1	2	0-00
Anæmia ...	...	...	...	...	...	...	...	...	...	...	...	3	2	5	0-02
Senile Gangrene	3	1	3	1	4	9	0-02
Embolism, Thrombosis ...	...	...	...	...	1	1	1	3	1	3	3	7	10	17	0-05
Varicose Veins ...	...	...	...	...	...	...	...	...	...	...	...	2	2	4	0-01
Other and ill-defined Diseases of Heart and Circulatory System ...	2	4	1	1	2	4	7	2	61	59	44	35	117	106	222	1-15
Laryngitis ...	3	1	4	...	4	0-02
Croup ...	...	1	1	...	...	...	...	...	...	...	...	1	1	2	0-01
Other Diseases of Larynx and Trachea ...	1	1	1	1	2	0-01
Acute Bronchitis ...	16	14	2	5	1	...	1	3	3	3	8	25	31	56	0-29	
Chronic Bronchitis ...	...	...	...	...	...	...	...	33	22	40	30	73	52	125	0-65
Lobar, Croupous, Acute Pleuro-Pneumonia ...	4	1	3	...	1	1	11	5	1	1	...	21	7	28	0-14	
Lobular, Catarrhal, Broncho-Pneumonia ...	11	14	8	4	1	1	...	...	...	...	5	21	28	49	0-24
Pneumonia, form not stated ...	13	5	6	7	3	3	4	1	24	16	9	39	35	74	0-44	
Empysemæ, Asthma ...	...	1	...	...	...	...	...	8	3	2	...	10	4	14	0-07
Pleurisy ...	...	1	...	...	1	...	...	4	4	1	1	6	6	12	0-06
Other and ill-defined Diseases of Respiratory System ...	...	1	...	...	...	...	...	2	1	...	...	2	2	4	0-02
Diseases of Mouth and Annæxa ...	...	...	...	1	...	...	...	...	...	1	...	1	1	2	0-01
Ulcer of Stomach and Duodenum ...	...	...	...	...	1	...	1	3	3	...	3	13	6	9	0-04
Other Diseases of the Stomach ...	7	3	...	...	...	...	...	3	5	3	3	13	12	25	0-12
Enteritis ...	21	15	2	4	...	1	...	...	2	1	2	24	24	48	0-24
Appendicitis ...	...	...	...	4	...	...	...	2	2	1	...	7	2	9	0-04
Obstruction of Intestine ...	1	...	1	1	1	1	...	5	2	3	1	11	5	16	0-08	
Cirrhosis of Liver ...	...	...	...	...	...	...	...	2	8	...	3	6	11	17	0-08
Other Diseases of Liver ...	2	...	1	...	...	...	...	2	5	2	3	5	10	15	0-07
Peritonitis ...	...	2	...	1	1	...	...	2	4	...	1	5	6	11	0-05
Other and ill-defined Diseases of Digestive System ...	1	...	1	...	...	...	...	...	...	2	1	4	1	5	0-02
Diseases of Lymphatic System and Ductless Glands ...	...	...	...	...	...	...	1	1	2	1	...	2	3	5	0-02
Acute Nephritis ...	...	...	...	...	...	...	1	5	5	1	...	9	5	14	0-07
Bright's Disease ...	...	...	...	...	...	...	1	11	11	2	3	14	14	28	0-14
Calculus ...	...	...	...	...	...	...	...	1	1	...	...	1	1	2	0-01
Diseases of Bladder and Prostrate ...	...	...	...	...	...	...	...	2	...	5	2	7	2	9	0-04
Other and ill-defined Diseases of Urinary System ...	...	...	...	...	...	...	...	3	1	...	...	3	1	4	0-02
Diseases of Ovaries	1	...	1	1	2	0-00
Diseases of Uterus and Appendages	1	...	3	4	4	8	0-02
Diseases of Breast	1	1	2	2	4	0-01
Puerperal Convulsions	1	1	1	2	0-00
Placenta Prævia, Flooding, Accidental Hemorrhage	2	2	2	4	0-01
Puerperal Thrombosis	0-00
Other & ill-defined Accidents & Diseases of Pregnancy & Childbirth	1	...	3	4	4	8	0-02
Other and ill-defined Diseases of Osseous System	1	1	...	1	0-00
Ulcer, Bedsores ...	...	1	...	...	...	...	...	1	2	...	1	2	3	5	0-02
Eczema ...	...	1	1	...	...	...	...	...	...	...	...	...	1	2	

The Deaths in the above Table are those of Residents who died within the City.